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# Vital and Health Statistics

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## Supplements to the Monthly Vital Statistics Report

Series 24:  
Compilations of Data on Natality,  
Mortality, Marriage, Divorce, and  
Induced Terminations of Pregnancy  
No. 8

These supplements to the *Monthly Vital Statistics Report* present data on maternal and infant health data from the birth certificate, mortality by occupation, firearm mortality, trends in pregnancies, and induced terminations of pregnancy. These reports were originally published in 1989–95.

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Ronald Chamblee, *Chief, Technical Services Branch*

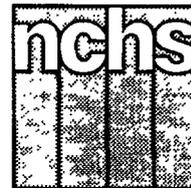
Robert J. Armstrong, *Acting Chief, Statistical Resources Branch*

Nicholas F. Pace, *Acting Chief, Systems and Programming Branch*

# Contents

Advance report of maternal and infant health data from the birth certificate, 1991 .....	Vol. 42, No. 11, Supp
Advance report of maternal and infant health data from the birth certificate, 1990 .....	Vol. 42, No. 2, Supp
Advance report of new data from the 1989 birth certificate .....	Vol. 40, No. 12, Supp
Mortality by occupation, industry, and cause of death: 12 reporting States, 1984 .....	Vol. 42, No. 4, Supp
Firearm mortality among children, youth, and young adults 1–34 years of age, trends and current status: United States, 1979–88 .....	Vol. 39, No. 11, Supp
Trends in pregnancies and pregnancy rates: Estimates for the United States, 1980–92 .....	Vol. 43, No. 11, Supp
Trends in pregnancies and pregnancy rates, United States, 1980–88 .....	Vol. 41, No. 6, Supp
Induced terminations of pregnancy: Reporting States, 1988 .....	Vol. 39, No. 12, Supp
Induced terminations of pregnancy: Reporting States, 1987 .....	Vol. 38, No. 9, Supp
Induced terminations of pregnancy: Reporting States, 1985 and 1986 .....	Vol. 37, No. 12, Supp

# Monthly Vital Statistics Report



Final Data From the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

## Advance Report of Maternal and Infant Health Data from the Birth Certificate, 1991

### Contents

Introduction .....	1
Medical risk factors .....	2
Tobacco use .....	2
Alcohol use .....	4
Maternal weight gain .....	5
Obstetric procedures .....	6
Complications of labor and/or delivery .....	7
Method of delivery .....	7
Abnormal conditions of newborn .....	9
Congenital anomalies .....	10
References .....	10
List of tables .....	13
Technical notes .....	30

procedures performed, complications of labor and/or delivery, method of delivery, and abnormal conditions and congenital anomalies of the newborn. This major enhancement of medical and health data available on an annual basis for mothers and babies greatly expands the scope of information on pregnancy outcome in the United States (1,2). This is the third report focusing on these new data. Similar information for 1989 and 1990 has been presented in earlier reports (3,4). Demographic information for 1991 births, as well as 1991 data on topics such as prenatal care, low birthweight, and preterm births, were presented in a recent report (5).

The data available for 1989-91 reflect a significant departure from prior years in birth certificate content and format. Checkboxes are used extensively to obtain detailed medical and health data requested. Uniform reporting and a specific focus on the requested data are facilitated by the new format.

As of 1991, all States and the District of Columbia had implemented the new

birth certificate. Although most States adopted the revision in its entirety, there are some exceptions. Some States did not include every item in their revisions: Tobacco and alcohol use, weight gain, and congenital anomalies were not reported or were not in the requested format by some States. In addition, for checkbox items reported by all States, some States did not include each checkbox for a particular item. As a consequence, the total number of births in the areas reporting each factor or condition and the number of births for which the information is not stated will vary to reflect the differing number of States reporting the specific factor or condition. These variations are indicated in the tables.

Over the 3-year period, 1989-91, there have been improvements in the completeness of reporting of the new items, as physicians, midwives, medical records personnel, and others become familiar with the birth certificate form. The proportion of records with missing information did not exceed 5 percent for

### Introduction

Since the 1989 data year, information has been available on a wide variety of important maternal and infant health factors affecting birth outcome. These include medical and life-style risk factors of pregnancy and birth, obstetric

### Acknowledgments

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any item, except maternal weight gain (13 percent).

Rates for medical and health information reported in the checkboxes for medical risk factors, obstetric procedures, complications of labor and/or delivery, and abnormal conditions of the newborn are expressed as the number of births with the specific factor per 1,000 total live births in the specified group. Rates for congenital anomalies are expressed per 100,000 total live births in the specified group. Brief medical definitions for each of the factors as well as definitions of the rates by method of delivery are presented in the "Technical notes."

All data are shown by race of mother. For ease and clarity of writing, the terms "mothers" and "women" are used interchangeably for "births" or "infants," for example, "births to black mothers" or "black infants." Although data are shown by race and Hispanic origin of the mother in the tables, this does not imply that differences shown are racial or genetic per se. Differences between white and black women or between Hispanic and non-Hispanic women, for example, are often due to the lower income and educational levels of minority women, their limited access to health care and health insurance, the neighborhoods in which they live, and other factors.

In addition to the tables included in this report, the analysis that follows draws on more detailed tabulations not shown in the report. These additional tabulations are available on request from the Division of Vital Statistics, by writing to the address on the back of this report.

### Medical risk factors

Women for whom certain medical risk factors are present during pregnancy face an increased risk of poor birth outcome. In particular, the incidence of low birthweight (less than 2,500 grams or 5 lb 8 oz) may be elevated and some birth defects may be more likely (6). Low birthweight in turn is closely linked with infant morbidity and mortality (7) and developmental delays in childhood. Obstetric and delivery procedures can be affected when certain medical risk factors are present (6,8). For example, diabetes, hypertension, and genital herpes are associated with elevated cesarean delivery

rates. Pregnant women with diabetes and/or anemia may also require other specific prenatal care interventions. Information on the presence or absence of medical risk factors was not reported for 4 percent of U.S. births in 1991, about the same level as in 1990.

In 1991 as in 1989 and 1990, the most frequently reported risk factors were anemia, diabetes, and pregnancy-associated hypertension, with rates of 18.8 to 27.3 per 1,000 live births (table 1). The 1991 rates for anemia and diabetes were 3 and 10 percent higher, respectively, than the 1990 rates. Rates for cardiac disease, acute or chronic lung disease, herpes, and hydramnios/oligohydramnios were higher in 1991 than in 1990, while rates for eclampsia, incompetent cervix, previous infant of 4,000 grams (8 lb 14 oz) or more, previous preterm or small-for-gestational-age (SGA) infant, and uterine bleeding declined. The rates for other factors were essentially unchanged.

Teenage mothers have substantially elevated rates for anemia (27.9 per 1,000) and pregnancy-associated hypertension (32.4), a pattern that has been observed previously (3,4). The rates for anemia generally dropped with increasing maternal age, to a low of 14.4 for mothers ages 30–34 years, and then rose thereafter to 16.2 for mothers in their forties. This U-shaped pattern of occurrence was also observed for hydramnios/oligohydramnios, pregnancy-associated hypertension, eclampsia, and acute or chronic lung disease.

Rates for other medical risk factors increased fairly steadily as age of mother advanced. The most notable of these is diabetes, with rates increasing from 7.9 for teen mothers to 65.8 for mothers in their forties. Other factors with this pattern of occurrence are cardiac disease, genital herpes, chronic hypertension, incompetent cervix, previous infant of 4,000 grams or more, previous preterm or SGA infant, and uterine bleeding.

The patterns of rates for most risk factors by age for white and black women were fairly similar, but substantial racial disparities were noted in the rates of occurrence for certain factors. For example, rates for black women for three factors—anemia, chronic hypertension, and eclampsia—were 52–116 percent

greater than comparable rates for white women. In contrast, the rates for previous infant of 4,000 grams or more were much higher for white women. Although the overall rates for pregnancy-associated hypertension were similar for white and black women, the rates for older black women were considerably higher than for older white women.

Mothers with certain selected medical risk factors face a sharply elevated risk (17–30 percent) of giving birth to a low-birthweight infant. These factors include hydramnios/oligohydramnios, chronic and pregnancy-associated hypertension, eclampsia, incompetent cervix, previous preterm or SGA infant, and uterine bleeding. Diabetes, in contrast, is linked with an increased risk of macrosomia or unusually high birthweight. For example, of babies born to diabetic mothers in 1991, 16.9 percent weighed 4,000 grams or more compared with 10.6 percent of all births. Similarly, mothers who have previously had a heavier-than-average baby are at greater risk of repeating that pattern. Most of the same risk factors associated with high levels of low birthweight are also associated with greater risk of preterm delivery (prior to 37 completed weeks of gestation). These include hydramnios/oligohydramnios, chronic hypertension, eclampsia, incompetent cervix, previous preterm or SGA infant, and uterine bleeding, with preterm rates of 20 percent or more compared with 11 percent of all births.

### Tobacco use during pregnancy

It has been long acknowledged that cigarette smoking during pregnancy is strongly associated with reduced infant birthweight, premature delivery, and intrauterine growth retardation (9–11). Low birthweight in turn is among the major predictors of infant mortality and infant and childhood morbidity. Maternal smoking has been associated in numerous studies with elevated rates of sudden infant death syndrome (SIDS) even after controlling for other risk factors (12–14). SIDS itself is closely linked with low birthweight.

Tobacco adversely affects pregnancy outcome through several mechanisms. One of the most important of these is that

carbon monoxide from tobacco smoke is carried into the fetal blood supply and deprives the growing infant of oxygen (11,15).

In 1991, 46 States and the District of Columbia (accounting for 76 percent of births in the United States) reported tobacco use on the birth certificate. Data were not provided at all, or were not in the necessary format by California, Indiana, New York, and South Dakota. Information was reported for all but 4 percent of the records in the reporting States.

Smoking during pregnancy was reported by 17.8 percent of women giving birth in 1991, a decline from 18.4 percent reported in 1990 and 19.5 percent reported in 1989 (table 2 for 1991 data) (3,4). These levels are comparable to those reported in the 1988 National Maternal and Infant Health Survey (16).

White mothers were more likely to smoke than black mothers, a pattern reported in 1989 and 1990 as well. In 1991, 18.8 percent of white mothers were smokers compared with 14.6 percent of black mothers, both lower than the 1990 levels (19.4 percent of white mothers and 15.9 percent of black mothers). Smoking is generally uncommon among Asian women, with rates of 2–8 percent reported for Chinese, Japanese, Filipino, and other Asian mothers. Only Hawaiian women have a relatively high smoking rate, 19.4 percent. The smoking rate for American Indian mothers is also high, 22.6 percent (17) (tabular data not shown). Caution should be exercised in interpreting the data on smoking for Asian mothers (except Hawaiians). Maternal tobacco use was not reported on the birth certificates of California and New York, which together accounted for 43–66 percent of the births in each Asian subgroup (except Hawaiian). However, the data are believed to be generally reliable because other studies have also found that the smoking rates for Asian mothers are low (18).

Tobacco use during pregnancy declined for mothers in most age groups in 1991. The patterns by age however were unchanged. Mothers aged 18–19 and 20–24 years had the highest smoking rates, 21.5 percent and 21.2 percent,

respectively. Mothers under 15 (7.6 percent) and 40 years of age and older (11.9 percent) had the lowest smoking rates.

Of mothers who smoked, a majority (61 percent) smoked half a pack daily or less (10 cigarettes or fewer) and 21 percent smoked 5 cigarettes or fewer per day. However, one-third of mothers were reported as heavy smokers, that is, 16–20 cigarettes or more per day.

The number of cigarettes smoked increased as age of mother advanced. Of teens who smoked, 7 in 10 smoked half a pack of cigarettes or less per day, and just 3 percent smoked more than a pack daily. Conversely, 54–57 percent of women in their thirties smoked less than half a pack of cigarettes per day and 7–10 percent smoked more than a pack per day.

Not only were white mothers more likely than black mothers to smoke during pregnancy, those who smoked were heavier smokers. Among white mothers, 57 percent smoked half a pack or less and 6 percent smoked more than a pack daily. In contrast, among black smokers, 77 percent smoked half a pack or less and just 3 percent smoked more than a pack.

The patterns of smoking by age differ considerably for white and black mothers. Smoking levels for white mothers were highest for women in age groups 15–24 years. The rate for older white teens was especially high, 27 percent, but even among white teens 15–17 years, nearly one-fourth were reported as smokers in 1991. Conversely, smoking rates among black mothers increased steadily with age, from 2 percent of teens under 15 years to 22 percent of women aged 30–34, and then declined.

Hispanic mothers have been shown repeatedly to have very low smoking rates (17–21). Data from the 1991 birth certificate confirm this, although as noted above for Asian women, the data on tobacco use by Hispanic mothers are affected by the lack of data for New York and California, both States with large Hispanic populations. In 1991, 6 percent of Hispanic mothers as a group were smokers compared with 21 percent of white non-Hispanic and 15 percent of black non-Hispanic mothers. Among the Hispanic subgroups, Mexican and Central

and South American mothers had the lowest smoking rates, 5 and 3 percent, respectively, followed by 6–13 percent of Cuban, Puerto Rican, and “other” and unknown Hispanic mothers (table 3). Not only do Hispanic women have generally low smoking rates, the rates are even lower for foreign-born than for U.S.-born Hispanic women (22).

Smoking rates by maternal age varied little for mothers with low overall smoking rates. Thus, 4–6 percent of Mexican mothers, 2–4 percent of Central and South American mothers, and 6–7 percent of Cuban mothers were smokers. The rates by age were more varied for Puerto Rican (9–14 percent) and other and unknown Hispanic women (7–12 percent).

Smoking rates by maternal age varied more substantially by race for non-Hispanic mothers. The rates for all black women and black non-Hispanic women were essentially the same at each age group because very few black women are Hispanic.

In contrast, the smoking rates for all white women were somewhat lower than the rates for white non-Hispanic women at each age. This reflects the substantial proportion of white births that are to Hispanic mothers (19 percent) whose smoking rates are very low. Among white non-Hispanic mothers, the proportion who smoked ranged from 12 percent for mothers in their forties to 32 percent for mothers aged 18–19 years, the highest age-specific smoking rate for any racial or ethnic group.

Smoking rates vary in a distinctive pattern by maternal education (table 4). The highest rates are consistently observed for mothers with 9–11 years of formal schooling, 32 percent in 1991. High school graduates and women with a grade school education had similar smoking rates, 18–21 percent. The lowest rate was for college graduates, 4 percent. Among women with the highest smoking rates, those with 9–11 years of schooling, the proportion who smoked is higher than 40 percent for women aged 25–34 years (tabular data not shown).

The disparity in smoking rates by education is observed for white and black mothers. White mothers are much more likely than black mothers in each

education category (except college graduates) to have smoked. Among mothers with 9–11 years of school, for whom the racial differential is largest, white mothers were 86 percent more likely than black mothers to have smoked. White and black mothers with at least 1 year of college had very similar smoking rates.

Mothers with the lowest smoking rates also smoked the fewest cigarettes. Thus, nearly three-quarters of college graduates smoked half a pack of cigarettes or less compared with 59 percent of mothers with 9–11 years of schooling. Conversely, women with 9–11 years of schooling were much more likely than college graduates to smoke more than half a pack a day (41 percent compared with 28 percent).

Maternal smoking has been linked in many studies to a sharply elevated rate of low birthweight (10,11). Birth certificate data available now for 3 years have corroborated this finding. In 1991, 11.4 percent of births to smokers compared with 6.4 percent of births to nonsmokers were of low birthweight (less than 2,500 grams or 5 lb 8 oz) (table 5). These levels have been essentially the same since 1989. When the rates are examined by maternal age, it is apparent that the disparity worsens for each older age group. Even among teen mothers, whose risk of bearing a low-birthweight infant is relatively high, the low-birthweight rate was 10–21 percent higher for smokers than for nonsmokers. For women in their early twenties, the differential was 52 percent. At older ages, births to mothers who smoked were at more than double the risk of low birthweight.

These patterns were observed for both white and black infants. For white births, the proportions low birthweight by smoking status were 9.6 percent for smokers and 5.0 percent for nonsmokers. The proportions were much higher for black births (21.8 percent for smokers compared with 12.1 percent for nonsmokers), but the disparity by smoking status was still evident. The severely adverse impact of smoking on low-birthweight levels was observed for white and black mothers in each age group and worsened with advancing maternal age.

The number of cigarettes smoked daily can exacerbate the effect of

smoking on birthweight (10,17). The percent low birthweight for even the lightest smokers (five cigarettes or fewer) was substantially higher than the percent for nonsmokers (10.6 percent compared with 6.4 percent). However, the effect of smoking is worsened when the mother is a heavy smoker. In 1991 the proportion low birthweight increased to 16.9 percent for births to mothers smoking more than two packs of cigarettes daily (tabular data not shown). The proportion for white births rose from 8.0 percent for the lightest smokers to 14.5 percent for the heaviest smokers. For black births the increase was from 19.0 percent for the lightest smokers to 32.7 percent for the heaviest smokers. There is clearly no low-smoking level that is advantageous for infant birthweight.

The overall impact of maternal smoking on low birthweight in the United States can be estimated by assuming that no pregnant women smoked during pregnancy and that the low-birthweight rate for nonsmokers by age and race applied to all women. In 1991 low birthweight would have been about 13 percent lower than the actual levels if no pregnant women smoked; the incidence of low birthweight would have been about 6.2 percent rather than 7.1 percent.

### Alcohol use during pregnancy

Alcohol use during pregnancy is also a risk factor for poor pregnancy outcome. Studies have shown that heavy alcohol use causes a variety of adverse effects. The most severe of these is fetal alcohol syndrome, which is characterized by growth retardation; facial malformations; and dysfunctions of the central nervous system, including mental retardation and behavioral disorders (23). Alcohol consumption has also been shown to affect infant birthweight independently of tobacco use and other maternal and infant characteristics (17,24).

Alcohol use was reported on the birth certificates of 47 States and the District of Columbia in 1991. This information was not available for California, New York, and South Dakota. The items on the birth certificate asked if the mother used alcohol during pregnancy and, if so, the average number of drinks per week;

this information was not provided on 4 percent of the birth certificates in the reporting area.

Reported alcohol use declined for mothers in all racial and Hispanic-origin groups from 1990 to 1991. In 1991, 2.9 percent of births were to mothers who reported alcohol use (table 6). Black mothers were slightly more likely than white mothers to report alcohol use, 3.4 percent compared with 2.7 percent. Asian mothers generally reported low rates of alcohol use, ranging from 0.9 percent (Filipino and other Asian/Pacific Islander women) to 3.0 percent (Hawaiian mothers). The highest reported rate was for American Indian women, 7.3 percent (tabular data not shown).

Hispanic mothers also have low reported rates of alcohol use, 1.4 percent overall. Central and South American mothers and Cuban mothers had the lowest reported rates of alcohol use, 0.8–0.9 percent, and Puerto Rican mothers, the highest, 2.6 percent (table 7). Because data on alcohol use were not reported for California and New York, where 40–66 percent of mothers in Asian and Hispanic subgroups reside (except Hawaiians and Cubans), the rates for alcohol use for these groups should be interpreted cautiously.

Alcohol use during pregnancy is clearly substantially underreported. Other studies that utilized personal interviews and written questionnaires found levels of alcohol use during pregnancy of 20 percent or more (25,26). It is believed that the underreporting results partly from the wording of the question on the birth certificate. The focus is on the number of drinks per week, which probably discourages the reporting of alcohol use by women who have perhaps one or two drinks per month. Another factor causing underreporting is probably the possible stigma associated with drinking, especially during pregnancy.

The proportion of mothers for whom alcohol use is reported increased steadily with advancing maternal age, from 0.9 percent of teens under 15 to about 4 percent of mothers aged 35 and older. The pattern is similar for white women; for black women, reported alcohol use increased to a peak of 5.6–5.7 percent for

women aged 30–39 years, and then declined thereafter.

Among women who drank during pregnancy, 62 percent reported one drink per week or less, 16 percent reported two drinks, 10 percent reported three to four drinks, and 12 percent reported five drinks or more. Black women were not only more likely than white women to report alcohol use, they also had more drinks per week. For example, 41 percent of black mothers reported three drinks or more weekly compared with 17 percent of white mothers.

The relationship of alcohol use with mother's educational attainment is not consistent. The highest reported drinking rate is for mothers with 9–11 years of schooling, 3.5 percent, but mothers who are college graduates had only a slightly lower rate of 3.1 percent (tabular data not shown).

Other data from 1991 birth certificates show that maternal alcohol use, even though underreported, has a detrimental effect on pregnancy outcome. The proportion low birthweight for babies born to drinkers was 12.1 percent compared with 7.1 percent of births to non-drinkers. The detrimental effect of drinking is increased with heavier drinking. The percent low birthweight increased from 8.6 percent for births to women having one drink per week or less to 23.2 percent for births to women having five drinks or more. Furthermore, studies have shown that when tobacco use is combined with alcohol use, there is an additional adverse impact on infant birthweight (17).

## Maternal weight gain

Maternal weight gain during pregnancy is strongly related to infant birthweight (27,28), length of gestation (29), and fetal growth (30), which in turn are important determinants of infant morbidity and mortality. Since 1989 information on maternal weight gain has been available from certificates of live birth. In 1991 the District of Columbia and all States except California (representing 85 percent of all births) included this item on their birth certificate. For these reporting areas, information on weight gain was missing from 13 percent of the birth certificates.

In 1990 the Institute of Medicine (IOM) of the National Academy of Sciences issued guidelines for maternal weight gain, which were substantially higher than those previously recommended by the medical community. The new guidelines were geared to the mother's weight and height and recommended that a mother of average size gain 25–35 pounds for optimum pregnancy outcome (31). In 1991, 35.1 percent, or about one in three mothers, gained 26–35 pounds (table 8), a slightly reduced percent than in 1990 and 1989 (35.6 percent). Concomitantly, mothers were more likely in 1991 than in 1990 to gain at least 36 pounds (28.8 percent compared with 28.4 percent), or to gain less than 21 pounds (20.7 percent compared with 20.3 percent). A shift in weight gain from 26–35 pounds to higher gains and an increase in weight gains of less than 21 pounds is evident for all periods of gestation. Because of this compensating shift in the weight gain distribution, the median weight gain in 1991 was the same as in 1990, 30.4 pounds.

In 1991, as in previous years, a far higher proportion of black than white mothers gained less than 21 pounds (30.9 percent compared with 18.3 percent). This low a weight gain is associated with a greatly increased likelihood of a low-birthweight outcome (less than 2,500 grams, or 5 lb 8 oz). Consistent with these lower weight gains, black mothers were less likely than white mothers to gain at least 36 pounds (25.1 percent compared with 29.8 percent). The median weight gain of black mothers was about 2½ pounds less than that of white mothers (28.0 pounds versus 30.6 pounds).

One of the reasons for the lower weight gains of black mothers is that period of gestation is substantially shorter for black infants, and weight gain is reduced for shortened gestational periods. But in addition, as indicated in table 8, regardless of period of gestation, black mothers have a lower median weight gain than white mothers and are far more likely to gain less than 21 pounds. For gestations of 40 weeks and longer, more than one in four black mothers had this minimum weight gain compared with one in six white mothers. A recent study found that medical advice about weight

gain differed substantially for white and black mothers, with black mothers significantly more likely to report advice below the then-current medical community recommendations (32).

There are also substantial differentials in weight gain among other racial, national origin, and Hispanic-origin groups. About one in four American Indian, Japanese, and "Other" Asian and Pacific Islander mothers (a group which includes Cambodian, Asian Indian, and Vietnamese mothers) compared with one in five Chinese, Filipino, and Hawaiian mothers gained less than 21 pounds. Among Hispanic-origin groups, Mexican, Puerto Rican, and Central and South American mothers were more likely to have a minimal weight gain (22–27 percent) than Cuban mothers (17 percent) (tabular data not shown). However, when interpreting data on weight gain for Hispanic-origin and Asian mothers, it should be kept in mind that California, where 41 percent of Hispanic mothers and 40 percent of Asian mothers resided in 1991, does not request weight gain on birth certificates.

Weight gain also differs substantially by maternal age. Mothers in the youngest and oldest years of childbearing are at highest risk of a low weight gain, and women in their mid- to late twenties and early thirties are at lowest risk; 23 percent of teenage mothers and 26 percent of women 40–49 years of age gained less than 21 pounds compared with 19 percent of women in their mid-twenties to early thirties.

An additional factor strongly affecting weight gain is the mother's educational attainment, with weight gain increasing noticeably with additional years of schooling. Twice the proportion of mothers with less than 12 years of schooling (28 percent) gained less than 21 pounds than mothers with 16 years of education or more (14 percent).

As noted earlier, weight gain has a profound effect on birthweight. In 1991 the percent low birthweight declined steadily with increased weight gain, from 15.6 percent for weight gains of less than 16 pounds to 4.0 percent for weight gains of 41–45 pounds, and then increased slightly to 4.4 percent for weight gains of 46 pounds or more (table 9). A very similar pattern is evident for gestations of

under 37 weeks, 37–39 weeks, and 40 weeks and over for both white and black mothers. However, for each weight-gain category, black babies are more likely than white babies to have a low birthweight, and the racial differential increases markedly as period of gestation lengthens (table 9). Because of this racial differential, which was noted in previous studies (27,33), the IOM recommended that black women should strive for weight gains toward the upper end of the ranges recommended for white women with similar prepregnancy weight for height (31). A recent study found that the infants of black women showed a consistent increase in birthweight as weight gain met or exceeded the 1990 IOM guidelines for their weight and height, supporting the IOM suggestion that black women gain at the upper end of the recommended range (30).

With added weight gain, the decline in low birthweight is as substantial for black as for white babies. For example, for white births low birthweight declined from 12.6 percent for weight gains of less than 16 pounds to 3.8 percent for weight gains of 41 pounds or more, or a 70-percent decline; for black births the comparable decline with increased weight gain was from 23.3 percent to 6.5 percent, a decline of 72 percent.

A similar pattern of a reduced incidence in low birthweight with increased maternal weight gain is evident for all Hispanic-origin groups (table 10). In 1991 information on maternal weight gain for Hispanic-origin births was available from the District of Columbia and from all States except New Hampshire and California (85 percent of all births in the United States).

Low birthweight was three to four times as prevalent for Hispanic mothers who gained less than 16 pounds as for those who gained 46 pounds or more (table 10). For all Hispanic-origin groups combined the decline in low birthweight was from 12.1 percent for gains of less than 16 pounds to 4 percent for gains of at least 41 pounds. The decline in low birthweight with added weight gain was especially striking for Puerto Rican births. Overall, the percent low birthweight for Puerto Rican babies was 9.5, or 40 percent higher than the average

for all Hispanic births (6.8 percent). When the weight gain of Puerto Rican mothers reached 41 pounds or greater, low birthweight dropped to 5.1 percent, or just 24 percent higher than the average for Hispanic-origin mothers (4.1 percent).

### Obstetric procedures

In 1991 information on obstetric procedures was not reported for 3 percent of the births. The rates for these procedures can be examined by maternal and infant characteristics and measurements of birth outcome.

The most prevalent procedure reported in 1991 was electronic fetal monitoring (EFM), which was developed to detect early signs of fetal distress during labor and has been associated with lowered perinatal mortality and increased surgical intervention (34). EFM was used for 76 percent of all live births in 1991 (table 11) compared with 73 percent in 1990 and 68 percent in 1989. Data from two surveys conducted by the National Center for Health Statistics (NCHS) demonstrate that EFM usage rose substantially during the 1980's, from 45 percent in 1980 to 62 percent in 1988 (35). In 1991 the difference in EFM usage between low-birthweight births (less than 2,500 grams or 5 lb 8 oz) and births of 2,500 grams or more was only 1 percent (tabular data not shown). The rates by age of mother range from 72 to 76 percent for this procedure, with the highest level (76 percent) for the youngest age group (less than 20 years of age). All age groups experienced increases of 3 to 4 percent in EFM compared with 1990; EFM also showed an increase between 1989 and 1990. Increases in EFM were observed for both white and black mothers for all ages.

In 1991, 24 percent of all live births did not receive EFM, and according to the American College of Obstetricians and Gynecologists, "Currently available data support the conclusion that, within specified intervals, intermittent auscultation (listening to sounds within the body with or without a stethoscope) is equivalent to continuous electronic fetal monitoring in detecting fetal compromise" (36). Thus, these births did not necessarily run an additional risk of

undetected fetal compromise.

Ultrasound usage can improve the dating of gestational age (37) and is helpful in confirming conditions such as unclear vaginal bleeding (38). According to data from the birth certificate, 56 percent of mothers who had live births in 1991 received ultrasound compared with 52 percent in 1990 and 48 percent in 1989. Results from the 1988 National Maternal and Infant Health Survey show ultrasound usage at 63 percent (16). This suggests that there may be underreporting of ultrasound on the birth certificate. Increases from 1990 by age ranged from 5 to 8 percent. For mothers in all age groups at least 54 percent had ultrasound. The variation in the receipt of ultrasound by age for white mothers was small (56–58 percent). For black mothers the levels were slightly lower than for white mothers and also showed a small range by age (51–52 percent).

The overall rates of stimulation of labor and induction of labor in 1991 were 121 and 105 per 1,000 live births, respectively. Mothers 25–29 years of age had the highest rate of stimulation of labor (124 per 1,000) and mothers 40–49 years of age had the lowest rate (117 per 1,000). Induction of labor rates had a slightly larger range by age, from 90 for the youngest mothers to 114 for the oldest mothers. For both black and white mothers, rates for induction of labor were lowest for the youngest mothers and highest for the oldest mothers, with rates by age up to 36 percent lower for black mothers as compared with white mothers. The rates of both of these procedures increased from 1990 for both black and white mothers in all age groups.

Both of these procedures were more likely to occur for births where infant birthweight was higher. The range in rates between infants weighing less than 2,500 grams (low birthweight) and those over 4,000 grams (macrosomia) for stimulation of labor was from 81 to 130 per 1,000 live births and for induction, from 84 to 148. These differences by birthweight were most pronounced for mothers whose weight gain during pregnancy was more than 36 pounds for stimulation and for mothers gaining less than 20 pounds for induction (tabular data not shown).

Amniocentesis, an invasive prenatal diagnostic procedure performed between the 15th and 16th week of gestation to detect genetic disorders, was reported for 32 of every 1,000 live births in 1991, a decrease of 6 percent from 1990. The rate of amniocentesis for the oldest age group (40–49 years of age) was 16 times the rate for the youngest mothers (188 compared with 12 per 1,000). Similar differences by age were observed for white mothers. For black mothers the difference between the oldest and youngest age groups was twelvefold (106 compared with 9 per 1,000). White mothers were nearly twice as likely as black mothers to have had amniocentesis (34 compared with 18 per 1,000). The percent difference between the rates for white and black mothers was smallest for mothers 20–29 years of age and largest for mothers 35–39 years of age.

Tocolysis, which is used to avoid preterm births, was the least prevalent of procedures identified on the birth certificate and for the second consecutive year showed no change from the previous year (16 per 1,000 live births). White mothers were more likely than black mothers to have received tocolysis, a reversal from 1990. This was caused by an increase in the rate for white mothers (5 percent) and a decline for black mothers (18 percent). By age, the highest rates in 1991 were for black and white mothers under 20 years of age (16 and 19 per 1,000).

Rates for the six selected procedures vary by the education of mother, birthweight and gestational age of the infant, and month prenatal care began (tabular data not shown). All of these procedures had higher rates for mothers with 13 years of education or more compared with mothers who had less schooling. The rates for amniocentesis showed the greatest percent difference between mothers with 13 years of education or more and mothers with less education (47 and 20 per 1,000 live births). The same pattern is observed for black and white mothers. Mothers giving birth to low-birthweight infants or preterm (less than 37 completed weeks of gestation) infants were much more likely than normal birthweight and term births to have had amniocentesis (1.8 and 1.7 times) or tocolysis (5.9 and 5.3 times). However,

these mothers were less likely to have had labor induced or stimulated. The rates for all six of these procedures were higher for mothers who began prenatal care in the first trimester of pregnancy compared with mothers who began prenatal care later.

### Complications of labor and/or delivery

In 1991 information on complications of labor and/or delivery was not reported on less than 4 percent of the birth certificates. Six complications were reported at a rate greater than or equal to 30 per 1,000 live births: Meconium, moderate/heavy (61 per 1,000), fetal distress (43 per 1,000), breech/malpresentation (38 per 1,000), cephalopelvic disproportion (35 per 1,000), premature rupture of membrane (33 per 1,000), and dysfunctional labor (30 per 1,000). The least common complications were anesthetic complications and seizures during labor, which occurred less than once per 1,000 live births (table 12).

Febrile, precipitous labor, and other excessive bleeding were the only complications in 1991 with increases in rates at least 2 percent over the previous year. There were little or no changes in the rates for fetal distress; dysfunctional labor; breech/malpresentation; seizures during labor; and meconium, moderate/heavy. The remaining seven complications had lower rates in 1991. For white mothers the increases and decreases showed the same pattern as for all races except fetal distress (no change) and seizures during labor (decrease). For black mothers 11 complications had lower rates in 1991; febrile, other excessive bleeding, precipitous labor, and fetal distress were higher than in 1990.

Distinctions by age of mother were observed in the rates of three of the six most prevalent complications. Meconium and fetal distress had the highest rates for the youngest (under 20 years of age) and oldest (40–49 years of age) mothers and the lowest rates for mothers 25–34 years of age. Breech/malpresentation had the highest rates for the oldest mothers and the lowest rates for the youngest mothers. Although not a frequent complication, placenta previa had the greatest percent

difference between older and younger mothers (8 and 1 per 1,000 live births).

Of the six most prevalent complications, four occurred most often to mothers with 13 years of education or more and two, meconium and fetal distress, occurred most often to mothers with less than 12 years of education (tabular data not shown). The same pattern is observed for white mothers. For black mothers meconium and premature rupture were the only complications of the six most prevalent with the highest rates for mothers with less than 12 years of education. And, in direct contrast to white mothers, the highest rates for fetal distress occurred to mothers with the most education.

Only four complications (meconium, prolonged labor, dysfunctional labor, and cephalopelvic disproportion) had lower rates for low-birthweight infants (less than 2,500 grams) than for infants weighing 2,500 grams or more. Of these four, prolonged labor, dysfunctional labor, and particularly cephalopelvic disproportion had higher rates for mothers who gained more weight during pregnancy in spite of the weight of the infant (tabular data not shown). Of the remaining 11 complications, which had higher complication rates for low-birthweight infants, four (premature rupture of membrane, abruptio placenta, placenta previa, and seizures during labor) had rates at least four times those of infants weighing 2,500 grams or more. These same four complications with considerable differences by birthweight also had large differences (three to eight times) in rates for those born preterm (less than 37 completed weeks of gestation) when compared with term births.

### Method of delivery

Information on method of delivery has been available from live birth certificates since 1989. In 1991 only 2.6 percent of all certificates lacked this information. Although data on method of delivery are only recently available from birth certificates, national and regional information has been available since 1965 from the National Hospital Discharge Survey (NHDS), conducted annually by NCHS. From this source, it has

been determined that the national cesarean rate rose fairly steadily in the last few decades, from 4.5 percent in 1965 until the 1986–91 period, when it reached a plateau of approximately 24 percent (39).

In 1991, 905,077 births, or 22.6 percent of the 4,110,907 live births in the United States, were delivered by cesarean (table 13), almost no change from the 1990 cesarean rate of 22.7 percent, or the 1989 rate of 22.8 percent. More than one-third (37 percent) of all cesarean births were repeat cesareans and slightly less than two-thirds (63 percent) were first cesareans (table 13). The 1991 primary cesarean rate (first cesareans per 100 live births to women who had no previous cesarean) derived from live birth certificates was 15.9, again nearly unchanged from the 1990 rate of 16.0 or the 1989 rate of 16.1.

Among the national objectives for health promotion and disease prevention for the year 2000 are reductions of the overall cesarean rate to no more than 15, and of the primary cesarean rate to no more than 12 (40). In 1991, 18 States had an overall cesarean rate of 20 or less, but no State had a cesarean rate as low as 15; only 6 States had a primary cesarean rate of 12 or less (tabular data not shown in this report).

Both overall and primary cesarean rates increase substantially with advancing maternal age. Rates are particularly high for women 35 years and older (table 13). In 1991 the total cesarean rate increased from 16.4 percent for teenagers to 29.0 percent for women in their late thirties and to 32.1 percent for women in their forties; the primary cesarean rate rose from 14.6 percent for women under 20 years of age to 18.9 percent for women in their late thirties and to 22.9 percent for women in their forties. Advanced maternal age appears to be one of the most critical risk factors determining whether a woman has a cesarean delivery. Older mothers are more likely to deliver by cesarean regardless of race, Hispanic origin, parity, marital status, educational attainment (41), pregnancy complications (42), or physician's practice organization (43). A recent study postulated that the increased risk of cesarean delivery for older women was

due to altered uterine contractions, decreased pelvic compliance, and diminished maternal expulsive efforts (44).

Vaginal birth after a previous cesarean delivery (VBAC) is not as common in the United States as in other developed countries (45). However, information from the NHDS indicates that the VBAC rate in the United States has risen sharply in the last few decades and was 12 times as high in 1991 as in the 1970's (39). The 1991 VBAC rate as reported on live birth certificates was 21.3 percent (table 13), up from 19.9 percent in 1990 and 18.9 percent in 1989. Thus, in 1991 of the women who had a previous cesarean, 21.3 percent delivered vaginally and 78.7 percent had a repeat cesarean. Older mothers are less likely to have a VBAC than younger mothers; the VBAC rate declined from 25.1 percent for mothers under 20 years of age to 15.8 percent for mothers in their forties.

A number of medical studies have validated the safety of VBAC: Perinatal death rates are similar for VBAC and repeat cesarean deliveries (46,47), and women having a VBAC delivery have lower morbidity than those having a repeat cesarean (47).

The year 2000 objective pertaining to VBAC is for the rate to rise to 35 (40). In 1991 only five States reported VBAC rates of 35 or higher. However, even if this goal is met, the year 2000 goal for a decline in the total cesarean rate to 15 will not be reached without a substantial reduction in the primary rate as well (39).

There are no major differences in the overall, primary, and VBAC rates between white and black mothers. White mothers were slightly more likely to be delivered by cesarean than black mothers (22.9 percent compared with 21.9 percent), and the white primary cesarean rate was also only slightly higher than the black rate (16.1 percent compared with 15.5 percent). The VBAC rate was nearly identical for white and black mothers (21.1 percent and 21.2 percent, respectively). However, there are very substantial differences among other racial and Hispanic-origin groups in cesarean rates, even when differences in the age distribution of mothers are taken into account (41). In 1991 Filipino mothers had the highest cesarean delivery rate (25.1) and

American Indian mothers the lowest (18.2). Cuban mothers had the highest cesarean rate of any Hispanic-origin group (33.4), with rates for other Hispanic groups ranging from 21.1 for Mexican mothers to 22.6 for "Other" and unknown Hispanic origin.

Since 1989 certificates of live birth have included questions on a number of medical risk factors of pregnancy, complications of labor and/or delivery, and obstetric procedures. In 1991 information on rates of cesarean delivery for these items was available for all States and the District of Columbia. Medical definitions for the conditions and procedures analyzed in this report can be found in the "Technical notes."

Cesarean rates for many of the medical risk factors of pregnancy for which information is available from birth certificates are well above average (table 14). In 1991 cesarean rates were over 40 for chronic hypertension (41 percent), hydramnios/oligohydramnios (43 percent), genital herpes (44 percent), and eclampsia (52 percent).

Even higher cesarean rates are evident for a number of complications of labor and delivery, with rates of 50 or more for anesthetic complications (54 percent), abruptio placenta (58 percent), cord prolapse (61 percent), fetal distress (61 percent), dysfunctional labor (67 percent), placenta previa (83 percent), breech and other malpresentation (85 percent), and cephalopelvic disproportion (98 percent)(table 14).

Dystocia, a diagnosis referring to such conditions as failure to progress, dysfunctional labor, prolonged labor, and cephalopelvic disproportion was, after repeat cesarean delivery, the largest contributor to both the recent rise in cesarean deliveries (48) and to the 1991 overall cesarean rate (49). Of all cesareans performed in 1991, 35 percent were associated with a previous cesarean, 30 percent with dystocia, 12 percent with breech presentation, 9 percent with fetal distress, and 14 percent with all other specified complications. Recognizing the importance of dystocia as an indication for the rising rate of cesarean delivery, the American College of Obstetricians and Gynecologists has called for a reassessment of the management of dystocia and

the use of a more definitive diagnosis for this condition (50).

Of the five obstetric procedures shown in table 14, only tocolysis and ultrasound had higher than average associated cesarean rates (32 percent for tocolysis and 25 percent for ultrasound).

The 1991 cesarean rates for the selected medical risk factors, complications, and obstetric procedures shown in this report are very similar to rates in 1990 and 1989, generally within 1 percentage point. For all years, rates are generally quite similar for white and black mothers (41).

Information on the day of the week that births occurred first became available in 1980. Since that time there has been a growing deficit of births on weekends, concomitant with an increase in births on Tuesdays through Fridays. The increasing concentration of births on weekdays is associated with both the increase in the number of cesarean deliveries through the mid-1980's and an increase in the induction of labor for vaginal births. In 1991, 10.7 percent of vaginal births were induced and 9.1 percent were induced in 1989, an 18-percent increase. Induction of vaginal births is much less likely on weekends than on most weekdays; 5.5 percent of vaginal births were induced on Sundays and 8.1 percent were induced on Saturdays compared with 12 to 13 percent of the births on Tuesdays through Fridays (tabular data not shown).

An index of occurrence is used to assess differences in the daily number of births. The index relates the average number of births for each day of the week to the average daily number of births for the year. In 1991 the index for all births occurring on Sundays was 78.2. This means that there were approximately 22 percent fewer births on Sundays than the average for all days of the week combined. There was also a large deficit of births (15 percent) on Saturdays. The highest indices were for Tuesdays (111.3) and Fridays (108.6).

Even larger weekend deficits are apparent for cesarean deliveries, particularly repeat cesareans which are often scheduled. For repeat cesareans the Sunday deficit was 61 percent and the Saturday deficit was 54 percent; for primary cesareans the Sunday deficit was 31 percent and the Saturday deficit was

20 percent. A very similar pattern in the daily occurrence of births is evident for white and black births (table 15).

Information from the NHDS indicates that, concomitant with the rise in cesarean delivery, there was a sharp decline in the use of forceps in the 1980's (51), and that by 1991 this use was still declining (49). Since 1989 information on forceps deliveries has been available from live birth certificates. In that year forceps were used for 5.5 percent of all births; by 1991 this method of delivery declined to 4.6 percent. White mothers are more likely to have a forceps delivery than black mothers (4.9 percent compared with 3.0 percent). For both races the use of forceps increases with added birthweight and is five times as frequent for birthweights of 3,500 grams or more (7 lb 12 oz or more) as for birthweights of less than 1,500 grams (3 lb 4 oz), 5.0 percent of births compared with 1.0 percent (tabular data not shown).

Unlike the declining trend in forceps deliveries, there has been a steady increase in the use of vacuum extraction since 1980, according to information from the NHDS (49,51). Data from live birth certificates confirm the increase into the early 1990's. In 1989, 3.5 percent of live births were by vacuum extraction; in 1990, 3.9 percent; and in 1991, 4.4 percent. In 1991, as in previous years, this mode of delivery was more frequent for white than for black births (4.7 percent compared with 2.6 percent). As noted for forceps delivery, the rate of vacuum extraction increases sharply with added birthweight and is 12 times as high for birthweights of 3,500 grams or more as for birthweights of less than 1,500 grams (4.8 percent compared with 0.4 percent).

### Abnormal conditions of the newborn

Information on abnormal conditions of the newborn was not provided for 4 to 5 percent of the births.

The abnormal conditions with the highest rates per 1,000 live births were assisted ventilation less than 30 minutes (14 per 1,000), assisted ventilation 30 minutes or longer (8 per 1,000), and hyaline membrane disease/respiratory distress syndrome (RDS) (6 per 1,000).

A comparison of different data sources for 1989–91 suggests substantial underreporting on the birth certificate for birth injuries and fetal alcohol syndrome (FAS). From over 11.4 million live births in these 3 years, there were only 1,652 reported cases of FAS, a rate of 0.14 cases per 1,000 live births. The Centers for Disease Control and Prevention's Birth Defects Monitoring Program estimated rates for FAS to be more than twice that derived from the birth certificate for this same 3-year period. FAS can be difficult to recognize because of the subtlety of facial stigmata, the difficulty in detecting some types of central nervous system deficits, and because some of these infants are of normal birthweight (52). The identification of fetal alcohol syndrome can often occur after the birth certificate has been filed. Some physicians who suspect fetal alcohol syndrome do not make the diagnosis (53) because of the stigma associated with it. The related annual costs for FAS are estimated to be 250 million dollars, of which nearly 60 percent is attributed to mental retardation (54).

The rates for abnormal conditions in 1991, as in 1989 and 1990, were higher for black births than for white births for all conditions except assisted ventilation less than 30 minutes and birth injuries. The highest rates by age for anemia, hyaline membrane disease/RDS, assisted ventilation less than 30 minutes and 30 minutes or longer were observed for the youngest mothers (under 20 years of age).

Meconium aspiration syndrome (MAS), which is associated with increased neonatal morbidity and mortality (55), had the highest rates for the oldest mothers (40–49 years of age) (table 16). Of the 11,051 reported cases of meconium aspiration syndrome, 60 percent also reported meconium moderate/heavy under complications of labor and/or delivery (tabular data not shown). There is some debate about whether the pathology of MAS is more closely related to perinatal asphyxia than to meconium itself (56,57).

Only two abnormal conditions—birth injury and meconium aspiration syndrome—were less frequent among low-birthweight infants (less than 2,500 grams) compared with infants weighing 2,500

grams or more. There were very large differences between low-birthweight infants and those of higher weight in the rates of hyaline membrane disease/RDS (55 and 2 per 1,000 live births) and assisted ventilation 30 minutes or longer (62 and 3 per 1,000 live births). Although less pronounced, the rates of the same two conditions that had the largest differences by birthweight also had the largest differences between preterm births (less than 37 completed weeks gestation) and term births (37 completed weeks gestation or more) (tabular data not shown).

## Congenital anomalies

Congenital anomalies are a major cause of neonatal mortality and morbidity and of shortened life expectancy (58,59). Before 1989 information on congenital anomalies of the newborn was reported on birth certificates in the form of an open-ended question. Because of the inadequacies of collecting data in this format, a checkbox item for reporting congenital anomalies was included in the 1989 revised U.S. Standard Certificate of Live Birth to encourage more complete and uniform reporting. In 1991, 48 States and the District of Columbia, representing 92 percent of births in the United States, reported this item; information was not available for births in New Mexico and New York. The item was not completed for only 5 percent of the birth certificates in the reporting area.

Data presented in this report do not reflect the entire incidence of congenital anomalies. Completeness of reporting depends to a great extent on how readily an anomaly is recognized within the short period after the birth and before the filing of the birth certificate. Other reasons for incomplete reporting include the desire to confirm a diagnosis before entry on an official record, the entry of only the most severe anomaly when a child is born with multiple defects, and the use of indefinite terminology.

Small yearly changes in anomaly rates should be interpreted with caution. For any one year the number of births with a specific anomaly may be relatively small. Additionally, reporting practices in some areas can vary from year to year. Because of the low frequency of

occurrence of many of the anomalies included on birth certificates, congenital anomaly rates in this report are calculated per 100,000 live births.

For many anomalies maternal age is an important predictive characteristic. As indicated in table 17, rates decline sharply with advancing age for anencephalus, spina bifida/meningocele, microcephalus, rectal atresia/stenosis, and omphalocele/gastroschisis. By contrast, rates increase substantially with age for heart malformations, "other" circulatory/respiratory anomalies, "other" gastrointestinal anomalies, malformed genitalia, cleft lip/palate, and particularly for Down's syndrome and "other" chromosomal anomalies. In 1991 the rate for Down's syndrome was 13 times as high for mothers aged 40-49 (375 per 100,000) as for mothers under 20 years of age (30 per 100,000); for "other" chromosomal anomalies the rate was three times as high for the oldest compared with the youngest mothers (129 compared with 46).

Congenital anomaly rates are generally higher for white than for black mothers. Rates for white births are at least double those for black births for tracheo-esophageal fistula/esophageal atresia, cleft lip/palate, and Down's syndrome and at least 50 percent higher for white births for 6 of the remaining 18 anomalies identified on birth certificates (table 17). Only one class of anomalies—polydactyly/syndactyly/adactyly—had a substantially higher frequency of occurrence among black than among white births. In 1991 these anomalies were reported for 229 of every 100,000 black births compared with 60 per 100,000 white births.

Sex of the child is also strongly associated with the incidence of some anomalies (tabular data not shown in this report). For example, rates for certain urogenital anomalies were far higher for male than for female births. For malformed genitalia, the rate in 1991 was 138 per 100,000 male births compared with 16 per 100,000 female births. Eighty-five percent of the births with urogenital anomalies were male and only 15 percent were female.

Weight at birth and gestational age are also associated with the incidence of

many congenital anomalies. Rates are generally highest for babies weighing less than 1,500 grams (3 lb 4 oz), decline rapidly with added birthweight to 3,500-3,999 grams (7 lb 12 oz to 8 lbs 13 oz), and then increase slightly for birthweights of 4,000 grams (8 lb 14 oz) or more. A decline in the incidence for higher birthweights is particularly noticeable for all central nervous system (CNS) anomalies (anencephalus, spina bifida/meningocele, microcephalus, and other CNS anomalies).

According to information from birth certificates, anencephalus and spina bifida/meningocele (two of a class of neural tube defects or NTD's) occur relatively infrequently in the United States (18 per 100,000 births for anencephalus and 25 per 100,000 births for spina bifida/meningocele in 1991), but the actual incidence of NTD's is probably higher. Other sources estimate that about 2,500 infants are born with spina bifida or anencephaly each year, or about 60 per 100,000 births (60) compared with 43 per 100,000 from birth certificate data. Although the underlying causes of NTD's are for the most part unknown (61), several studies indicate that folic acid supplementation can reduce the number of NTD's by 50 percent (60). The U.S. Food and Drug Administration recently proposed that bread and grain products be fortified with folic acid to help women of childbearing age ingest sufficient folic acid to prevent NTD's (62).

Consistent with the highest occurrence of congenital anomalies for very low-birthweight babies (less than 3 lbs 4 oz), babies born prematurely (less than 37 completed weeks of gestation) have much higher rates of all the anomalies specified on birth certificates than babies with longer gestational periods (tabular data not shown in this report).

## References

1. Taffel SM, Ventura SJ, and Gay GA. Revised U.S. certificate of birth: New opportunities for research on birth outcome. *Birth* 16(4):188-93. 1989.
2. Ventura SJ. New insights in maternal and infant health from the 1989 birth certificate. Paper presented at the annual meeting of the Population Association of America, May 2, Denver, 1992.

3. National Center for Health Statistics. Advance report of new data from the 1989 birth certificate. Monthly vital statistics report; vol 40 no 12, suppl. Hyattsville, Maryland: Public Health Service. 1992.
4. National Center for Health Statistics. Advance report of maternal and infant health data from the birth certificate, 1990. Monthly vital statistics report; vol 42 no 2, suppl. Hyattsville, Maryland: Public Health Service. 1993.
5. National Center for Health Statistics. Advance report of final natality statistics, 1991. Monthly vital statistics report; vol 42 no 3, suppl. Hyattsville, Maryland: Public Health Service. 1993.
6. Becerra JE, Khoury MJ, Cordero JF, Erickson JD. Diabetes mellitus during pregnancy and the risks for specific birth defects: A population-based case-control study. *Pediatrics* 85(1):1-9. 1990.
7. National Center for Health Statistics. Advance report of final mortality statistics, 1991. Monthly vital statistics report; vol 42 no 2, suppl. Hyattsville, Maryland: Public Health Service. 1993.
8. Centers for Disease Control and Prevention. Pregnancy complications and perinatal outcomes among women with diabetes, North Carolina, 1989-1990. *MMWR* 42:847-51. 1993.
9. Centers for Disease Control. Reducing the health consequences of smoking: 25 years of progress. A report of the Surgeon General. Office on Smoking and Health. Washington: U.S. Department of Health and Human Services. 1989.
10. Kleinman JC, Madans JH. The effects of maternal smoking, physical stature, and educational attainment on the incidence of low birth weight. *Am J Epidemiol* 121(6):843-55. 1985.
11. Floyd RL, Zahniser SC, Gunter EP, and Kendrick JS. Smoking during pregnancy: Prevalence, effects, and intervention strategies. *Birth* 18(1):48-53. 1991.
12. Li D, Daling J. Maternal smoking, low birth weight, and ethnicity in relation to sudden infant death syndrome. *Am J Epidemiol* 134(9):958-64. 1991.
13. Malloy MH, Kleinman JC, Land GH, Schramm WF. The association of maternal smoking with age and cause of infant death. *Am J Epidemiol* 128(1):46-55. 1988.
14. Schoendorf KC and Kiely JL. Relationship of sudden infant death syndrome to maternal smoking during and after pregnancy. *Pediatrics* 90(6):905-8. 1992.
15. Centers for Disease Control. The health benefits of smoking cessation. Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. Washington: U.S. Department of Health and Human Services. 1990.
16. National Center for Health Statistics. Unpublished data from 1988 National Maternal and Infant Health Survey. 1991.
17. Taffel SM, Ventura SJ. The hazards of maternal smoking: Evidence from the revised certificate of live birth. Paper presented at the annual meeting of the American Public Health Association, Oct 27, San Francisco. 1993.
18. Oregon Department of Human Resources. Tobacco and Oregonians: A legacy of illness and death. Portland, Oregon. Center for Health Statistics. 1992.
19. Fichtner RR, Sullivan KM, Zyrkowski CL, Trowbridge FL. Racial/ethnic differences in smoking, other risk factors, and low birth weight among low-income pregnant women, 1978-88. In: *CDC Surveillance Summaries, MMWR* 1990; 39(No.SS-3):13-21. July 1990.
20. Schoenborn C. Health promotion and disease prevention, United States, 1985. *National Center for Health Statistics. Vital Health Stat* 10(163). 1988.
21. Felice ME, Shragg P, James M, Hollingsworth DR. Clinical observations of Mexican-American, caucasian, and black pregnant teenagers. *J Adolesc Health Care*. 7(5):305-10. 1986.
22. Ventura SJ. Maternal and infant health characteristics of births to U.S.- and foreign-born Hispanic mothers. Paper presented at the annual meeting of the American Public Health Association, Oct 27, San Francisco. 1993.
23. National Institute on Alcohol Abuse and Alcoholism. Alcohol and health. Seventh Special Report to the U.S. Congress from the Secretary of Health and Human Services. Rockville, Maryland. 1990.
24. Graves C, Malin H, Placek P, et al. The effect of maternal alcohol and cigarette use on infant birthweight. *Alcohol Health and Research World* 8(1):39-40. 1983.
25. Pamuk ER, Mosher WD. Health aspects of pregnancy and childbirth, United States, 1982. *National Center for Health Statistics. Vital Health Stat* 23(16). 1988.
26. Serdula M, Williamson DF, Kendrick JS, et al. Trends in alcohol consumption by pregnant women, 1985-88. *JAMA* 265(7):876-79. 1991.
27. Taffel SM. Maternal weight gain and the outcome of pregnancy, United States, 1980. *National Center for Health Statistics. Vital Health Stat* 21(44). 1986.
28. Seidman DS, Ever-Hadani P, Gale R. The effect of maternal weight gain in pregnancy on birth weight. *Ob Gyn* 74(2):240-46. 1989.
29. Abrams B, Newman V, Key T, Parker J. Maternal weight gain and preterm delivery. *Ob Gyn* 74(4):577-83. 1989.
30. Hickey CA, Cliver SP, Goldenberg RL, et al. Prenatal weight gain, term birth weight, and fetal growth retardation among high-risk multiparous black and white women. *Ob Gyn* 81(4):529-35. 1993.
31. Institute of Medicine. Subcommittee on Nutritional Status and Weight Gain During Pregnancy. Nutrition during pregnancy. National Academy of Sciences. Washington: National Academy Press. 1990.
32. Taffel SM, Keppel KG, Jones GK. Medical advice on maternal weight gain and actual weight gain: Results from the 1988 National Maternal and Infant Health Survey. In: Keene CL, Bendich A, Willhite CC, eds. *Maternal Nutrition and Pregnancy Outcome. Annals of the New York Academy of Sciences*. 1993.
33. Kramer MS. Determinants of low birth weight: Methodological assessment and meta-analysis. *Bull. W.H.O.* 65:663-737.
34. Vintzileos AM, Antsaklis A, Varvarigos I, et al. A randomized trial of intrapartum electronic fetal heart rate monitoring versus intermittent auscultation. *Obstetrics and Gynecology* 81:899-907. 1993.
35. Albers LL, Krulewicz CJ. Electronic fetal monitoring in the United States in the 1980's. *Obstetrics and Gynecology* 82:8-10. 1993.
36. American College of Obstetricians and Gynecologists. Intrapartum fetal heart rate monitoring. Technical bulletin no 132. 1989.
37. Campbell S, Warsof SL, Little D, Cooper DJ. Routine ultrasound scanning for the prediction of gestational age. *Obstetrics and Gynecology* 65:613-20. 1985.
38. Bucher HC, Schmidt JG. Does routine ultrasound scanning improve outcome in pregnancy? Meta-analysis of various outcome measures. *BMJ* 307:13-17. 1993.
39. Centers for Disease Control and Prevention. Rates of cesarean delivery, United States, 1991. *MMWR* 42(15):285-9. 1993.
40. U.S. Department of Health and Human Services. Healthy People 2000. National health promotion and disease prevention objectives. Washington: Public Health Service. 1990.
41. Taffel SM. Cesarean delivery in the United States, 1990. *National Center for Health Statistics. Vital Health Stat*. In press.
42. Edge V, Laros RK Jr. Pregnancy outcome in nulliparous women aged 35 or older.

- Amer J Obstet Gynecol 168(6) Part 1:1881-5. 1993.
43. McCloskey L, Petitti D, Hobel CJ. Variations in the use of cesarean delivery for dystocia. *Med Care* 30(2):126-35. 1992.
  44. Adashek JA, Peaceman AM, et al. Factors contributing to the increased cesarean birth rate in older parturient women. *Amer J Obstet Gynecol* 169(4):936-40. 1993.
  45. Notzon FC. International differences in the use of obstetric interventions. *JAMA* 263(24):3286-91. 1990.
  46. Flamm BL, Newman LA, Thomas SJ, et al. Vaginal birth after cesarean delivery: Results of a 5-year multicenter collaborative study. *Obstet Gynecol* 76(5) Part 1:750-4. 1990.
  47. Rosen MG, Dickinson JC, Westhoff CL. Vaginal birth after cesarean: A meta-analysis of morbidity and mortality. *Obstet Gynecol* 77(3):465-70. 1991.
  48. Taffel SM, Placek PJ, Liss T. Trends in the United States cesarean section rate and reasons for the 1980-85 rise. *AJPH* 77(8):955-9. 1987.
  49. National Center for Health Statistics. 1991 National Hospital Discharge Survey. Unpublished tabulation.
  50. American College of Obstetricians and Gynecologists: ACOG Committee Statement. Dystocia: Etiology, diagnosis, and management guidelines. Washington, DC. 1983.
  51. Kozak LJ. Surgical and nonsurgical procedures associated with hospital delivery in the United States: 1980-87. *Birth* 16(4):209-13. 1989.
  52. Centers for Disease Control. Fetal alcohol syndrome, United States, 1979-92. *MMWR* 42(17):339-41. 1993.
  53. Morse BA, Idelson RK, Sachs WH, et al. Pediatricians' perspectives on fetal alcohol syndrome. *Journal of Substance Abuse* 4(2):187-95. 1992.
  54. Abel EL, Sokol RJ. A revised estimate of the economic impact of fetal alcohol syndrome. *Recent Dev Alcohol* 9:117-25. 1991.
  55. Hernandez C, Little BB, Dax JS, et al. Prediction of the severity of meconium aspiration syndrome. *Am J Obstet Gynecol* 169:61-70. 1993.
  56. Katz VL, Bowes WA Jr. Meconium aspiration syndrome: Reflections on a murky subject. *Am J Obstet Gynecol* 166:171-83. 1992.
  57. Wiswell TE. Meconium aspiration syndrome made murkier [letter]. *Am J Obstet Gynecol* 167:1914-6. 1992.
  58. Powell-Griner E, Woolbright LA. Trends in infant deaths from congenital anomalies: Results from England and Wales, Scotland, Sweden, and the United States. *Int J Epidemiol* 19(2):391-8. 1990.
  59. Ling EW, Sosuan LC, Hall JC. Congenital anomalies: An increasingly important cause of mortality and workload in a neonatal intensive care unit. *Am J Perinatol* 8(3):164-9. 1991.
  60. Centers for Disease Control. Recommendations for the use of folic acid to reduce the number of cases of spina bifida and other neural tube defects. *MMWR* 41/RR-14. 1992.
  61. American College of Obstetricians and Gynecologists Committee on Obstetrics. ACOG Committee Opinion No. 120. Folic acid for the prevention of recurrent neural tube defects. Washington, DC. 1993.
  62. Food and Drug Administration. Food standards: Amendment of the standards of identity for enriched grain products to require addition of folic acid. Docket No. 91N-100S. 1993.
  63. Brockert JE, Stockbauer JW, Senner JW, et al. Recommended standard medical definitions for the U.S. Standard Certificate of Live Birth, 1989 revision. Paper presented at the annual meeting of the Association for Vital Records and Health Statistics, June 25-27, Traverse City, Michigan. 1990.

**List of tables**

<p>1. Live births with selected medical risk factors and rates for selected medical risk factors, by age and race of mother: United States, 1991 . . . . .</p> <p>2. Number of live births by smoking status of mother, percent smokers, and percent distribution by average number of cigarettes smoked by mothers per day, according to age and race of mother: Total of 46 reporting States and the District of Columbia, 1991 . . . . .</p> <p>3. Number of live births by smoking status of mother and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 45 reporting States and the District of Columbia, 1991 . . . . .</p> <p>4. Number of live births, percent of mothers who smoked cigarettes during pregnancy, and percent distribution of average number of cigarettes smoked by mothers per day, according to educational attainment and race of mother: Total of 45 reporting States and the District of Columbia, 1991 . . . . .</p> <p>5. Percent low birthweight by smoking status, age, and race of mother: Total of 46 reporting States and the District of Columbia, 1991 . . . . .</p>	<p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>17</p>	<p>6. Number of live births by drinking status of mother, percent drinkers, and percent distribution of average number of drinks per week, according to age and race of mother: Total of 47 reporting States and the District of Columbia, 1991 . . . . .</p> <p>7. Number of live births by drinking status of mother and percent drinkers, by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 46 reporting States and the District of Columbia, 1991 . . . . .</p> <p>8. Number of live births and percent distribution by weight gain during pregnancy and median weight gain, according to period of gestation and race of mother: Total of 49 reporting States and the District of Columbia, 1991 . . . . .</p> <p>9. Percent low birthweight by weight gain during pregnancy, period of gestation, and race of mother: Total of 49 reporting States and the District of Columbia, 1991 . . . . .</p> <p>10. Percent low birthweight by weight gain during pregnancy, Hispanic origin of mother, and by race of mother for mothers of non-Hispanic origin: Total of 48 reporting States and the District of Columbia, 1991 . . . . .</p> <p>11. Live births with selected obstetric procedures and rates</p>	<p>18</p> <p>19</p> <p>19</p> <p>20</p> <p>20</p> <p>20</p>	<p>for selected obstetric procedures, by age and race of mother: United States, 1991 . . . . .</p> <p>12. Live births with selected complications of labor and/or delivery and rates for selected complications, by age and race of mother: United States, 1991. . . . .</p> <p>13. Live births by method of delivery and rates of cesarean delivery and vaginal birth after previous cesarean, by age and race of mother: United States, 1991 . . . . .</p> <p>14. Rates of cesarean delivery and vaginal birth after previous cesarean, by selected medical risk factors, complications of labor and/or delivery, and obstetric procedures: United States, 1991 . . . . .</p> <p>15. Live births by day of week and index of occurrence by method of delivery, day of occurrence, and race of mother: United States, 1991 . . . . .</p> <p>16. Live births with selected abnormal conditions of newborn and rates for selected abnormal conditions by age and race of mother: United States, 1991 . . . . .</p> <p>17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 48 reporting States and the District of Columbia, 1991 . . . . .</p>	<p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p> <p>26</p> <p>27</p>
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**Symbols**

- Quantity zero
  - \* Figure does not meet standards of reliability or precision (see Technical notes)
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**Table 1. Live births with selected medical risk factors and rates for selected medical risk factors, by age and race of mother: United States, 1991**

[Rates are number of live births with specified medical risk factor per 1,000 live births in specified group]

Medical risk factor and race of mother	All births <sup>1</sup>	Medical risk factor reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
All races <sup>2</sup>	Number			Rate						Number
Anemia . . . . .	4,110,907	73,970	18.8	27.9	22.5	15.7	14.4	15.1	16.2	168,710
Cardiac disease . . . . .	4,110,907	14,421	3.7	2.3	2.8	3.7	4.6	5.5	6.3	168,710
Acute or chronic lung disease . . . . .	4,110,907	14,465	3.7	4.4	3.5	3.2	3.7	4.5	4.8	168,710
Diabetes . . . . .	4,110,907	92,345	23.4	7.9	14.9	23.3	32.1	46.9	65.8	168,710
Genital herpes <sup>3,4</sup> . . . . .	3,634,317	28,356	8.0	5.6	6.9	7.7	9.8	11.3	11.0	95,935
Hydramnios/Oligohydramnios <sup>3</sup> . . . . .	3,952,063	25,531	6.7	6.8	6.8	6.3	6.6	7.7	10.1	161,657
Hemoglobinopathy <sup>3</sup> . . . . .	3,952,063	1,945	0.5	0.7	0.5	0.4	0.5	0.5	0.6	161,657
Hypertension, chronic . . . . .	4,110,907	25,703	6.5	2.7	4.0	5.9	8.7	14.3	26.7	168,710
Hypertension, pregnancy-associated . . . . .	4,110,907	107,692	27.3	32.4	27.6	25.5	25.1	29.5	35.6	168,710
Eclampsia . . . . .	4,110,907	14,063	3.6	5.6	3.7	3.0	2.9	3.6	4.3	168,710
Incompetent cervix <sup>3</sup> . . . . .	3,952,063	9,955	2.4	1.1	1.7	2.4	3.3	4.2	4.0	161,657
Previous infant 4,000+ grams <sup>3</sup> . . . . .	3,952,063	38,430	10.1	1.6	6.4	10.9	15.1	18.6	22.6	161,657
Previous preterm or small-for-gestational-age infant <sup>3</sup> . . . . .	3,952,063	44,245	11.7	5.9	11.3	11.7	13.7	15.9	17.5	161,657
Renal disease . . . . .	4,110,907	8,705	2.2	3.0	2.6	1.9	1.8	2.0	1.8	168,710
Rh sensitization <sup>5</sup> . . . . .	4,073,068	23,568	6.0	4.6	5.6	6.3	6.7	6.8	6.3	169,849
Uterine bleeding <sup>4</sup> . . . . .	3,793,161	29,303	7.9	6.0	7.0	8.1	9.2	9.7	10.5	103,002
<b>White</b>										
Anemia . . . . .	3,241,273	47,796	15.4	22.5	18.3	13.2	12.4	13.2	13.7	132,805
Cardiac disease . . . . .	3,241,273	11,977	3.9	2.3	2.8	3.9	4.9	5.7	6.5	132,805
Acute or chronic lung disease . . . . .	3,241,273	10,695	3.4	3.9	3.2	3.1	3.5	4.5	4.5	132,805
Diabetes . . . . .	3,241,273	73,752	23.7	8.9	15.6	23.1	31.0	44.3	62.1	132,805
Genital herpes <sup>3,4</sup> . . . . .	2,835,494	23,023	8.3	4.5	6.5	8.0	10.7	12.8	12.5	71,197
Hydramnios/Oligohydramnios <sup>3</sup> . . . . .	3,102,783	19,320	6.5	6.5	6.6	6.1	6.4	7.3	9.5	127,153
Hemoglobinopathy <sup>3</sup> . . . . .	3,102,783	711	0.2	0.2	0.2	0.2	0.3	0.3	*	127,153
Hypertension, chronic . . . . .	3,241,273	17,966	5.8	2.3	3.7	5.2	7.4	11.8	21.9	132,805
Hypertension, pregnancy-associated . . . . .	3,241,273	86,603	27.9	33.2	28.9	26.2	25.2	29.7	34.5	132,805
Eclampsia . . . . .	3,241,273	10,287	3.3	5.1	3.6	2.8	2.8	3.3	4.0	132,805
Incompetent cervix <sup>3</sup> . . . . .	3,102,783	6,953	2.3	1.2	1.6	2.2	3.1	4.2	4.1	127,153
Previous infant 4,000+ grams <sup>3</sup> . . . . .	3,102,783	34,462	11.6	1.8	7.2	12.1	16.6	20.5	25.4	127,153
Previous preterm or small-for-gestational-age infant <sup>3</sup> . . . . .	3,102,783	33,288	11.2	5.2	10.5	11.1	13.1	15.6	17.3	127,153
Renal disease . . . . .	3,241,273	7,017	2.3	3.3	2.7	1.9	1.8	2.0	1.8	132,805
Rh sensitization <sup>5</sup> . . . . .	3,207,599	21,173	6.9	5.5	6.4	7.1	7.5	7.7	7.2	133,845
Uterine bleeding <sup>4</sup> . . . . .	2,973,984	24,049	8.3	6.3	7.3	8.4	9.4	10.0	10.9	76,863
<b>Black</b>										
Anemia . . . . .	682,602	21,713	33.3	38.2	36.5	29.5	27.2	27.4	29.8	30,624
Cardiac disease . . . . .	682,602	2,030	3.1	2.6	2.8	3.1	3.9	5.1	5.7	30,624
Acute or chronic lung disease . . . . .	682,602	3,273	5.0	5.6	4.8	4.3	5.4	5.6	7.0	30,624
Diabetes . . . . .	682,602	12,776	19.6	5.5	11.9	23.0	35.8	55.6	81.0	30,624
Genital herpes <sup>3,4</sup> . . . . .	622,615	4,584	7.6	8.0	8.8	7.4	6.1	4.7	5.4	21,053
Hydramnios/Oligohydramnios <sup>3</sup> . . . . .	665,705	5,065	8.0	7.5	7.4	7.8	8.6	10.5	14.9	29,363
Hemoglobinopathy <sup>3</sup> . . . . .	665,705	1,104	1.7	1.9	1.8	1.6	1.8	1.5	*	29,363
Hypertension, chronic . . . . .	682,602	6,882	10.6	3.7	5.6	10.6	19.4	35.5	67.1	30,624
Hypertension, pregnancy-associated . . . . .	682,602	17,468	26.8	30.8	23.7	24.3	27.7	32.8	47.5	30,624
Eclampsia . . . . .	682,602	3,251	5.0	6.7	4.3	4.2	4.5	6.2	7.4	30,624
Incompetent cervix <sup>3</sup> . . . . .	665,705	1,829	2.9	1.0	2.2	3.7	4.8	5.6	5.2	29,363
Previous infant 4,000+ grams <sup>3</sup> . . . . .	665,705	2,508	3.9	1.0	3.1	4.7	6.7	9.2	11.2	29,363
Previous preterm or small-for-gestational-age infant <sup>3</sup> . . . . .	665,705	9,078	14.3	7.4	14.5	16.3	19.3	18.7	19.2	29,363
Renal disease . . . . .	682,602	1,379	2.1	2.4	2.1	2.1	1.9	1.9	*	30,624
Rh sensitization <sup>5</sup> . . . . .	679,440	1,961	3.0	2.6	3.1	3.1	3.5	2.9	3.4	30,707
Uterine bleeding <sup>4</sup> . . . . .	639,512	4,162	6.7	5.7	6.3	6.9	8.3	8.7	8.9	22,314

<sup>1</sup>Total number of births to residents of areas reporting specified medical risk factor.  
<sup>2</sup>Includes races other than white and black.  
<sup>3</sup>New York City (but not New York State) reports this risk factor.  
<sup>4</sup>Texas does not report this risk factor.  
<sup>5</sup>Kansas does not report this risk factor.

**Table 2. Number of live births by smoking status of mother, percent smokers, and percent distribution by average number of cigarettes smoked by mothers per day, according to age and race of mother: Total of 46 reporting States and the District of Columbia, 1991**

Smoking status, smoking measure, and race of mother	Age of mother										
	All ages	Under 15 years	15-19 years								
			Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
Number											
All races <sup>1</sup>											
Total . . . . .	3,111,544	9,720	409,564	148,200	261,364	837,451	921,862	658,395	238,127	36,425	
Smoker . . . . .	531,683	705	77,869	23,641	54,228	170,870	152,176	95,538	30,368	4,157	
Nonsmoker . . . . .	2,461,074	8,619	316,911	119,070	197,841	636,607	734,930	535,885	197,438	30,684	
Not stated . . . . .	118,787	396	14,784	5,489	9,295	29,974	34,756	26,972	10,321	1,584	
White											
Total . . . . .	2,439,406	3,718	267,183	88,880	178,303	626,992	758,240	554,765	198,936	29,572	
Smoker . . . . .	441,529	557	67,471	20,354	47,117	143,914	124,703	77,396	24,204	3,284	
Nonsmoker . . . . .	1,905,945	2,982	189,974	65,147	124,827	461,149	605,622	455,041	166,159	25,018	
Not stated . . . . .	91,932	179	9,738	3,379	6,359	21,929	27,915	22,328	8,573	1,270	
Black											
Total . . . . .	563,205	5,739	130,715	55,100	75,615	184,569	130,874	78,026	28,589	4,693	
Smoker . . . . .	79,143	119	8,431	2,593	5,838	23,434	24,636	16,346	5,434	743	
Nonsmoker . . . . .	462,165	5,411	117,724	50,578	67,146	154,145	100,858	58,331	21,951	3,745	
Not stated . . . . .	21,897	209	4,560	1,929	2,631	6,990	5,380	3,349	1,204	205	
Percent											
Smoker <sup>1</sup> . . . . .	17.8	7.6	19.7	16.6	21.5	21.2	17.2	15.1	13.3	11.9	
White . . . . .	18.8	15.7	26.2	23.8	27.4	23.8	17.1	14.5	12.7	11.6	
Black . . . . .	14.6	2.2	6.7	4.9	8.0	13.2	19.6	21.9	19.8	16.6	
Percent distribution											
All races <sup>1</sup>											
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
1-5 cigarettes . . . . .	20.7	36.7	26.2	30.1	24.5	20.8	19.5	18.7	18.0	17.7	
6-10 cigarettes . . . . .	39.8	42.6	43.0	43.5	42.8	40.9	39.1	37.9	36.2	34.8	
11-15 cigarettes . . . . .	6.4	*	5.0	4.4	5.3	6.2	7.0	7.0	6.2	6.2	
16-20 cigarettes . . . . .	27.4	16.2	22.4	19.2	23.8	27.1	28.5	29.1	30.1	30.6	
21-30 cigarettes . . . . .	4.0	*	2.4	2.0	2.6	3.5	4.2	5.0	6.0	6.7	
31-40 cigarettes . . . . .	1.5	*	0.8	0.7	0.8	1.2	1.5	2.1	3.1	3.4	
41 cigarettes or more . . . . .	0.2	*	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.6	
White											
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
1-5 cigarettes . . . . .	18.0	30.3	23.3	27.0	21.7	17.8	16.9	16.5	16.0	15.5	
6-10 cigarettes . . . . .	39.2	47.3	43.6	44.6	43.1	40.5	38.0	36.6	34.5	33.6	
11-15 cigarettes . . . . .	7.0	*	5.5	4.8	5.7	6.9	7.7	7.7	6.8	6.5	
16-20 cigarettes . . . . .	29.5	17.6	24.1	20.6	25.6	29.4	30.9	31.1	32.0	32.4	
21-30 cigarettes . . . . .	4.4	*	2.6	2.2	2.8	3.9	4.7	5.6	6.9	7.3	
31-40 cigarettes . . . . .	1.6	*	0.8	0.7	0.9	1.3	1.7	2.2	3.5	3.9	
41 cigarettes or more . . . . .	0.2	*	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.6	
Black											
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
1-5 cigarettes . . . . .	33.8	63.2	46.4	51.8	44.0	37.4	31.6	28.4	25.9	26.2	
6-10 cigarettes . . . . .	43.0	25.5	39.2	35.7	40.8	43.3	44.1	43.4	42.9	38.6	
11-15 cigarettes . . . . .	3.2	*	2.0	1.9	2.1	2.7	3.4	3.9	3.8	4.7	
16-20 cigarettes . . . . .	16.8	*	10.7	9.1	11.4	14.2	17.6	20.4	22.8	24.1	
21-30 cigarettes . . . . .	1.9	*	0.9	*	1.0	1.5	1.9	2.4	2.5	4.4	
31-40 cigarettes . . . . .	1.0	*	0.6	*	0.6	0.7	1.1	1.3	1.7	*	
41 cigarettes or more . . . . .	0.2	*	*	*	*	0.2	0.2	0.2	*	*	

<sup>1</sup> Includes races other than white and black.

NOTE: Excludes data for California, Indiana, New York, and South Dakota, which did not require reporting of tobacco use during pregnancy.

Table 3. Number of live births by smoking status of mother and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 45 reporting States and the District of Columbia, 1991

Smoking status and origin of mother	Age of mother										
	All ages	Under 15 years	15-19 years							35-39 years	40-49 years
			Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years			
All origins <sup>1</sup>			Number								
Total	3,095,203	9,712	408,408	147,865	260,543	833,958	916,353	653,963	236,605	36,204	
Smoker	528,313	703	77,457	23,521	53,936	169,785	151,143	94,917	30,177	4,131	
Nonsmoker	2,448,132	8,613	316,167	118,855	197,312	634,203	730,463	532,081	196,115	30,490	
Not stated	118,758	396	14,784	5,489	9,295	29,970	34,747	26,965	10,313	1,583	
Hispanic			Number								
Total	309,448	1,417	56,193	22,277	33,916	99,668	82,880	48,140	17,804	3,346	
Smoker	18,516	58	3,430	1,285	2,145	6,170	4,781	2,899	1,002	176	
Nonsmoker	273,779	1,268	49,434	19,668	29,766	87,988	73,545	42,689	15,864	2,991	
Not stated	17,153	91	3,329	1,324	2,005	5,510	4,554	2,552	938	179	
Mexican	191,101	947	36,555	14,430	22,125	64,111	49,481	27,712	10,317	1,978	
Smoker	8,572	34	1,613	637	976	2,830	2,176	1,339	477	103	
Nonsmoker	170,477	851	32,647	12,878	19,769	57,385	44,100	24,560	9,191	1,743	
Not stated	12,052	62	2,295	915	1,380	3,896	3,205	1,813	649	132	
Puerto Rican	35,467	197	7,953	3,334	4,619	12,329	8,756	4,501	1,483	248	
Smoker	4,395	12	894	312	582	1,623	1,112	563	170	21	
Nonsmoker	28,921	172	6,475	2,777	3,698	9,939	7,154	3,726	1,236	219	
Not stated	2,151	13	584	245	339	767	490	212	77	8	
Cuban	9,530	8	689	242	447	1,794	3,603	2,456	862	118	
Smoker	579	1	43	12	31	112	204	162	50	7	
Nonsmoker	8,829	7	642	230	412	1,663	3,358	2,255	794	110	
Not stated	122	-	4	-	4	19	41	39	18	1	
Central and South American	33,698	70	2,998	1,027	1,971	8,723	10,814	7,510	3,003	580	
Smoker	902	1	80	25	55	185	274	256	90	16	
Nonsmoker	31,547	66	2,798	956	1,842	8,247	10,109	6,976	2,807	544	
Not stated	1,249	3	120	46	74	291	431	278	106	20	
Other and unknown Hispanic	39,652	195	7,998	3,244	4,754	12,711	10,226	5,961	2,139	422	
Smoker	4,068	10	800	299	501	1,420	1,015	579	215	29	
Nonsmoker	34,005	172	6,872	2,827	4,045	10,754	8,824	5,172	1,836	375	
Not stated	1,579	13	326	118	208	537	387	210	88	18	
Non-Hispanic			Number								
Total <sup>2</sup>	2,761,368	8,225	349,027	124,418	224,609	727,854	826,535	600,437	216,757	32,533	
Smoker	505,108	641	73,236	21,974	51,262	161,972	145,095	91,282	28,954	3,928	
Nonsmoker	2,158,824	7,297	264,862	98,486	166,376	542,465	652,339	485,728	178,842	27,291	
Not stated	97,436	287	10,929	3,958	6,971	23,417	29,101	23,427	8,961	1,314	
White	2,105,900	2,298	209,473	66,244	143,229	522,327	667,496	499,696	178,724	25,886	
Smoker	416,710	497	63,110	18,787	44,323	135,573	118,125	73,417	22,915	3,073	
Nonsmoker	1,616,972	1,719	140,173	45,476	94,697	370,918	526,693	407,188	148,487	21,794	
Not stated	72,218	82	6,190	1,981	4,209	15,836	22,678	19,091	7,322	1,019	
Black	553,509	5,683	128,948	54,364	74,584	181,719	128,226	76,377	27,957	4,599	
Smoker	78,017	116	8,285	2,536	5,749	23,095	24,290	16,153	5,343	735	
Nonsmoker	454,837	5,367	116,353	50,009	66,344	152,003	98,868	57,098	21,476	3,672	
Not stated	20,655	200	4,310	1,819	2,491	6,621	5,068	3,126	1,138	192	
Smokers			Percent								
All origins <sup>1</sup>	17.7	7.5	19.7	16.5	21.5	21.1	17.1	15.1	13.3	11.9	
Hispanic	6.3	4.4	6.5	6.1	6.7	6.6	6.1	6.4	5.9	5.6	
Mexican	4.8	3.8	4.7	4.7	4.7	4.7	4.7	5.2	4.9	5.6	
Puerto Rican	13.2	*	12.1	10.1	13.6	14.0	13.5	13.1	12.1	8.8	
Cuban	6.2	*	6.3	*	7.0	6.3	5.7	6.7	5.9	*	
Central and South	2.8	*	2.8	2.5	2.9	2.2	2.6	3.5	3.1	*	
Other and unknown Hispanic	10.7	*	10.4	9.6	11.0	11.7	10.3	10.1	10.5	7.2	
Non-Hispanic <sup>2</sup>	19.0	8.1	21.7	18.2	23.6	23.0	18.2	15.8	13.9	12.6	
White	20.5	22.4	31.0	29.2	31.9	26.8	18.3	15.3	13.4	12.4	
Black	14.6	2.1	6.6	4.8	8.0	13.2	19.7	22.1	19.9	16.7	

<sup>1</sup>Includes origin not stated.  
<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, New Hampshire, New York, and South Dakota, which did not require reporting of either Hispanic origin of mother or tobacco use during pregnancy.

**Table 4. Number of live births, percent of mothers who smoked cigarettes during pregnancy, and percent distribution of average number of cigarettes smoked by mothers per day, according to educational attainment and race of mother: Total of 45 reporting States and the District of Columbia, 1991**

Smoking measure and race of mother	Total	Years of school completed by mother					
		0-8 years	9-11 years	12 years	13-15 years	16 years or more	Not stated
All births							
All races <sup>1</sup>	3,031,833	138,435	522,705	1,156,115	622,388	550,802	41,388
White	2,368,796	110,811	353,621	886,101	502,083	487,932	28,248
Black	560,122	19,902	152,742	235,811	102,608	39,009	10,050
Percent							
Smoker <sup>1</sup>	17.7	18.3	31.9	20.6	12.4	4.2	16.2
White	18.8	20.2	37.4	22.6	12.8	4.2	16.3
Black	14.6	12.0	20.1	14.2	11.0	5.2	19.5
Percent distribution							
All races <sup>1</sup>							
Smoker	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less	60.4	54.7	59.0	59.9	63.4	72.4	60.5
11-20 cigarettes	33.8	36.4	34.6	34.7	31.6	24.0	33.6
21 cigarettes or more	5.8	9.0	6.4	5.4	5.0	3.6	5.9
White							
Smoker	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less	57.1	52.3	54.6	56.6	60.7	71.7	55.5
11-20 cigarettes	36.6	38.2	38.2	37.4	33.9	24.6	37.5
21 cigarettes or more	6.3	9.5	7.1	5.9	5.4	3.7	7.0
Black							
Smoker	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less	76.8	72.7	76.1	77.6	77.7	78.5	71.9
11-20 cigarettes	20.1	22.1	20.3	19.7	19.6	19.7	24.6
21 cigarettes or more	3.1	5.2	3.7	2.6	2.7	1.8	3.5

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, New York, South Dakota, and Washington, which did not require reporting of either tobacco use during pregnancy or educational attainment of mother.

**Table 5. Percent low birthweight by smoking status, age, and race of mother: Total of 46 reporting States and the District of Columbia, 1991**

[Low birthweight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

Smoking status and race of mother	All ages	Under 15 years	Age of mother							
			15-19 years							
			Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years
All races <sup>1</sup>	7.3	14.3	9.7	10.6	9.2	7.5	6.4	6.6	7.7	8.7
Smoker	11.4	15.5	10.8	11.6	10.5	10.2	11.3	12.8	15.1	17.1
Nonsmoker	6.4	14.1	9.3	10.4	8.7	6.7	5.3	5.5	6.5	7.4
Not stated	8.9	16.5	11.2	12.3	10.6	9.4	7.8	8.2	9.3	10.6
White										
Smoker	9.6	14.1	10.2	11.2	9.8	8.9	9.2	10.0	12.5	14.7
Nonsmoker	5.0	11.3	7.0	7.9	6.5	5.0	4.3	4.6	5.6	6.3
Not stated	7.1	*	9.3	10.5	8.6	7.4	6.2	6.8	7.7	9.4
Black										
Smoker	21.8	22.7	16.9	15.6	17.5	18.9	22.3	25.9	27.2	27.5
Nonsmoker	12.1	15.8	13.3	13.7	12.9	11.7	11.0	11.9	12.9	14.8
Not stated	16.6	22.2	15.5	15.6	15.5	15.7	16.5	18.3	20.7	19.3

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, New York, and South Dakota, which did not require reporting of tobacco use during pregnancy.

Table 6. Number of live births by drinking status of mother, percent drinkers, and percent distribution by average numbers of drinks per week, according to age and race of mother: Total of 47 reporting States and the District of Columbia, 1991

Drinking status, drinking measure, and race of mother	Age of mother									
	All ages	Under 15 years	15-19 years							
			Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years
			Number							
All races <sup>1</sup>										
Total	3,197,251	9,934	421,712	152,295	269,417	862,959	947,856	674,423	243,253	37,114
Drinker	88,411	82	6,542	2,050	4,492	19,274	27,006	24,257	9,789	1,461
Nondrinker	2,979,981	9,419	398,983	144,276	254,707	810,923	883,339	621,011	222,350	33,956
Not stated	128,859	433	16,187	5,969	10,218	32,762	37,511	29,155	11,114	1,697
			White							
Total	2,514,797	3,827	276,715	91,862	184,853	649,078	781,941	569,463	203,578	30,195
Drinker	66,388	47	4,604	1,438	3,166	13,340	19,895	19,337	7,964	1,201
Nondrinker	2,348,377	3,580	261,290	86,701	174,589	611,582	731,901	526,009	186,383	27,632
Not stated	100,032	200	10,821	3,723	7,098	24,156	30,145	24,117	9,231	1,362
			Black							
Total	572,715	5,844	133,280	56,200	77,080	187,836	132,886	79,139	28,985	4,745
Drinker	18,842	26	1,486	449	1,037	5,034	6,230	4,295	1,561	210
Nondrinker	530,395	5,592	126,959	53,704	73,255	175,340	120,855	71,209	26,124	4,316
Not stated	23,478	226	4,835	2,047	2,788	7,462	5,801	3,635	1,300	219
			Percent							
Drinker <sup>1</sup>	2.9	0.9	1.6	1.4	1.7	2.3	3.0	3.8	4.2	4.1
White	2.7	1.3	1.7	1.6	1.8	2.1	2.6	3.5	4.1	4.2
Black	3.4	0.5	1.2	0.8	1.4	2.8	4.9	5.7	5.6	4.6
			Percent distribution							
All races <sup>1</sup>										
Drinker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less	61.8	51.1	62.8	61.3	63.5	59.5	61.5	63.7	61.5	59.6
2 drinks	15.7	*	13.5	14.7	12.9	15.5	15.8	15.6	17.2	17.7
3-4 drinks	10.3	*	11.2	10.6	11.5	11.3	10.2	9.6	10.2	9.1
5 drinks or more	12.2	*	12.5	13.3	12.1	13.7	12.6	11.2	11.1	13.5
			White							
Drinker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less	68.4	*	66.6	64.7	67.5	66.3	69.5	70.0	66.7	63.8
2 drinks	14.5	*	12.3	12.8	12.1	13.4	14.1	14.9	16.7	17.8
3-4 drinks	8.6	*	9.8	10.3	9.6	9.9	8.1	8.0	8.8	7.8
5 drinks or more	8.5	*	11.2	12.2	10.8	10.3	8.3	7.2	7.8	10.6
			Black							
Drinker	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less	38.5	*	52.4	52.6	52.3	42.6	36.4	34.6	33.6	34.9
2 drinks	20.6	*	17.3	21.5	15.6	21.3	21.7	19.2	20.4	19.2
3-4 drinks	16.2	*	15.0	10.9	16.6	14.8	16.8	16.8	17.3	15.8
5 drinks or more	24.8	*	15.3	15.0	15.5	21.4	25.1	29.3	28.8	30.1

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, New York, and South Dakota, which did not require reporting of alcohol use during pregnancy.

**Table 7. Number of live births by drinking status of mother and percent drinkers, by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 46 reporting States and the District of Columbia, 1991**

Drinking status of mother	All origins <sup>1</sup>	Origin of mother								
		Total	Hispanic					Non-Hispanic		
			Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total <sup>2</sup>	White	Black
Number										
Total . . . . .	3,180,910	311,289	192,465	35,689	9,539	33,745	39,851	2,845,097	2,179,428	562,962
Drinker . . . . .	87,764	4,020	1,916	855	84	274	891	82,719	61,199	18,491
Nondrinker . . . . .	2,964,327	288,152	176,852	32,584	9,323	32,169	37,224	2,657,466	2,040,301	522,404
Not stated . . . . .	128,819	19,117	13,697	2,250	132	1,302	1,736	104,912	77,928	22,067
Percent										
Drinker . . . . .	2.9	1.4	1.1	2.6	0.9	0.8	2.3	3.0	2.9	3.4

<sup>1</sup>Includes origin not stated.

<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California, New Hampshire, New York, and South Dakota, which did not require reporting of either alcohol use during pregnancy or Hispanic origin of mother.

**Table 8. Number of live births and percent distribution by weight gain during pregnancy and median weight gain, according to period of gestation and race of mother: Total of 49 reporting States and the District of Columbia, 1991**

Period of gestation <sup>1</sup> and race of mother	All births	Weight gain during pregnancy									Median weight gain
		Total	Less than 16 pounds	16-20 pounds	21-25 pounds	26-30 pounds	31-35 pounds	36-40 pounds	41-45 pounds	46 pounds or more	
All races <sup>2</sup>											
All gestational periods <sup>3</sup> . . . . .	3,500,830	100.0	9.6	11.1	15.4	20.4	14.7	12.6	6.3	9.9	30.4
Under 37 weeks . . . . .	382,305	100.0	17.6	15.5	16.2	17.9	11.1	9.4	4.5	7.8	26.4
37-39 weeks . . . . .	1,464,293	100.0	9.3	11.4	16.1	21.0	14.9	12.3	6.0	9.0	30.3
40 weeks and over . . . . .	1,634,083	100.0	8.1	9.8	14.6	20.3	15.4	13.6	7.0	11.1	30.8
White											
All gestational periods <sup>3</sup> . . . . .	2,740,621	100.0	8.1	10.2	15.3	20.9	15.6	13.2	6.6	10.0	30.6
Under 37 weeks . . . . .	248,831	100.0	14.3	14.2	16.6	18.9	12.4	10.2	5.1	8.4	28.0
37-39 weeks . . . . .	1,139,757	100.0	8.0	10.6	16.1	21.6	15.7	12.8	6.3	9.0	30.5
40 weeks and over . . . . .	1,338,545	100.0	7.1	9.2	14.5	20.7	16.1	14.0	7.3	11.1	30.9
Black											
All gestational periods <sup>3</sup> . . . . .	634,933	100.0	16.1	14.7	15.3	17.7	11.0	10.4	5.0	9.7	28.0
Under 37 weeks . . . . .	120,241	100.0	24.9	18.0	15.4	15.6	8.4	7.7	3.5	6.6	24.4
37-39 weeks . . . . .	267,346	100.0	14.9	14.6	15.8	18.4	11.4	10.6	5.0	9.3	28.2
40 weeks and over . . . . .	241,666	100.0	13.3	13.3	14.7	18.0	11.8	11.6	5.8	11.6	30.2

<sup>1</sup>Expressed in completed weeks.

<sup>2</sup>Includes races other than white and black.

<sup>3</sup>Includes births with period of gestation not stated.

NOTE: Excludes data for California, which did not require reporting of weight gain during pregnancy.

**Table 9. Percent low birthweight by weight gain during pregnancy, period of gestation, and race of mother: Total of 49 reporting States and the District of Columbia, 1991**

[Low birthweight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

Period of gestation <sup>1</sup> and race of mother	Weight gain during pregnancy									
	Total	Less than 16 pounds	16–20 pounds	21–25 pounds	26–30 pounds	31–35 pounds	36–40 pounds	41–45 pounds	46 pounds or more	Not stated
All gestational periods <sup>2</sup>										
All races <sup>3</sup> . . . . .	7.3	15.6	10.8	7.2	5.4	4.4	4.3	4.0	4.4	11.0
White . . . . .	5.9	12.6	9.1	6.2	4.6	3.9	3.7	3.6	4.0	8.5
Black . . . . .	13.6	23.3	16.8	12.3	10.0	8.1	7.7	6.7	6.3	18.4
Under 37 weeks										
All races <sup>3</sup> . . . . .	42.0	57.5	47.5	39.1	34.5	31.7	31.3	31.3	31.5	49.9
White . . . . .	40.3	56.9	47.5	38.5	33.7	31.3	31.0	31.3	32.9	47.2
Black . . . . .	46.4	59.3	48.9	41.2	37.3	34.1	32.7	31.5	28.5	54.8
37–39 weeks										
All races <sup>3</sup> . . . . .	4.6	8.0	6.4	4.7	3.8	3.2	3.2	3.1	3.4	6.1
White . . . . .	3.9	6.6	5.5	4.2	3.3	2.9	2.8	2.8	3.1	4.8
Black . . . . .	7.8	11.6	9.7	7.5	6.4	5.4	5.4	4.6	4.7	9.8
40 weeks and over										
All races <sup>3</sup> . . . . .	1.7	3.5	2.7	1.8	1.3	1.1	1.0	0.9	0.9	2.4
White . . . . .	1.3	2.7	2.1	1.5	1.1	0.9	0.8	0.7	0.8	1.8
Black . . . . .	3.7	6.5	5.0	3.8	3.0	2.3	2.3	1.9	1.8	4.7

<sup>1</sup>Expressed in completed weeks.  
<sup>2</sup>Includes births with period of gestation not stated.  
<sup>3</sup>Includes races other than white and black.

NOTE: Excludes data for California, which did not require reporting of weight gain during pregnancy.

**Table 10. Percent low birthweight by weight gain during pregnancy, Hispanic origin of mother, and by race of mother for mothers of non-Hispanic origin: Total of 48 reporting States and the District of Columbia, 1991**

[Low birthweight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

Origin of mother	Weight gain during pregnancy									
	Total	Less than 16 pounds	16–20 pounds	21–25 pounds	26–30 pounds	31–35 pounds	36–40 pounds	41–45 pounds	46 pounds or more	Not stated
All origins <sup>1</sup> . . . . .	7.4	15.7	10.8	7.2	5.4	4.4	4.3	4.0	4.4	11.0
Hispanic . . . . .	6.8	12.1	8.2	6.2	5.1	4.5	4.3	3.9	4.3	8.7
Mexican . . . . .	6.2	10.5	7.1	5.5	4.7	4.0	4.2	3.5	3.8	7.7
Puerto Rican . . . . .	9.5	17.3	12.0	8.1	6.7	6.4	5.4	5.1	5.1	12.7
Cuban . . . . .	5.5	14.4	8.2	6.0	4.2	3.4	3.7	4.1	3.6	9.3
Central and South American . . . . .	6.0	11.1	7.2	6.2	4.4	4.0	3.7	3.1	3.8	7.5
Other and unknown Hispanic . . . . .	7.6	13.7	10.4	7.2	5.9	4.8	4.4	4.9	5.3	9.9
Non-Hispanic <sup>2</sup> . . . . .	7.4	16.1	11.1	7.3	5.5	4.4	4.3	4.0	4.4	11.6
White . . . . .	5.8	12.7	9.2	6.2	4.6	3.8	3.6	3.6	4.0	8.3
Black . . . . .	13.7	23.4	16.8	12.4	10.0	8.2	7.8	6.7	6.3	18.6

<sup>1</sup>Includes origin not stated.  
<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California and New Hampshire, which did not require reporting of either weight gain during pregnancy or Hispanic origin of mother.

**Table 11. Live births with selected obstetric procedures and rates for selected obstetric procedures, by age and race of mother: United States, 1991**

[Rates are number of live births with specified procedure per 1,000 live births in specified group]

Obstetric procedure and race of mother	All births <sup>1</sup>	Obstetric procedure reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
All races <sup>2</sup>		Number		Rate						Number
Amniocentesis . . . . .	4,110,907	125,879	31.5	11.5	13.9	17.1	30.2	152.5	188.3	111,556
Electronic fetal monitoring . . . . .	4,110,907	3,020,280	755.2	762.1	758.1	758.9	751.2	736.8	722.4	111,556
Induction of labor . . . . .	4,110,907	418,346	104.6	89.5	100.9	109.5	108.7	110.7	114.4	111,556
Stimulation of labor . . . . .	4,110,907	483,025	120.8	118.6	119.1	123.5	121.8	117.6	116.6	111,556
Tocolysis . . . . .	4,110,907	64,121	16.0	18.2	16.6	15.2	15.3	15.8	14.8	111,556
Ultrasound <sup>3</sup> . . . . .	3,916,676	2,135,842	561.0	544.0	556.8	567.0	566.7	566.1	552.8	109,264
White										
Amniocentesis . . . . .	3,241,273	107,455	34.1	12.5	14.4	17.5	31.8	162.9	204.3	85,832
Electronic fetal monitoring . . . . .	3,241,273	2,402,250	761.3	768.7	764.3	765.7	757.4	742.1	729.8	85,832
Induction of labor . . . . .	3,241,273	356,571	113.0	99.6	110.2	117.0	115.3	116.7	121.7	85,832
Stimulation of labor . . . . .	3,241,273	393,030	124.6	123.8	123.6	126.7	124.9	120.3	121.0	85,832
Tocolysis . . . . .	3,241,273	51,888	16.4	19.3	17.1	15.6	15.6	16.1	15.5	85,832
Ultrasound <sup>3</sup> . . . . .	3,095,821	1,730,040	574.4	560.2	570.7	579.8	577.9	577.4	565.4	84,135
Black										
Amniocentesis . . . . .	682,602	11,730	17.7	9.2	12.0	14.7	19.6	81.3	106.0	21,522
Electronic fetal monitoring . . . . .	682,602	490,605	742.1	753.2	744.9	736.6	733.9	728.9	720.3	21,522
Induction of labor . . . . .	682,602	48,026	72.6	67.9	70.1	74.4	76.8	85.5	94.1	21,522
Stimulation of labor . . . . .	682,602	69,440	105.0	107.6	103.7	106.3	103.5	101.8	97.7	21,522
Tocolysis . . . . .	682,602	10,038	15.2	15.9	15.3	14.6	15.1	14.9	12.8	21,522
Ultrasound <sup>3</sup> . . . . .	639,357	317,591	513.6	508.5	513.1	512.9	521.3	520.2	517.2	21,026

<sup>1</sup>Total number of births to residents of areas reporting specified obstetric procedure.

<sup>2</sup>Includes races other than white and black.

<sup>3</sup>Illinois does not report this procedure.

**Table 12. Live births with selected complications of labor and/or delivery and rates for selected complications, by age and race of mother: United States, 1991**

[Rates are number of live births with specified complication per 1,000 live births in specified group]

Complication and race of mother	All births <sup>1</sup>	Complication reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
All races <sup>2</sup>	Number		Rate						Number	
Febrile . . . . .	4,110,907	51,488	13.0	16.4	13.4	12.8	11.5	11.2	11.2	148,049
Meconium, moderate/heavy . . . . .	4,110,907	240,881	60.8	66.3	61.2	58.8	58.7	62.1	68.9	148,049
Premature rupture of membrane . . . . .	4,110,907	129,088	32.6	32.4	30.7	32.2	33.6	36.5	39.8	148,049
Abruptio placenta . . . . .	4,110,907	23,810	6.0	5.9	5.7	5.7	6.3	7.3	8.2	148,049
Placenta previa . . . . .	4,110,907	13,864	3.5	1.3	2.2	3.4	4.9	7.1	8.3	148,049
Other excessive bleeding . . . . .	4,110,907	21,343	5.4	4.8	5.0	5.2	5.7	6.6	8.3	148,049
Seizures during labor . . . . .	4,110,907	1,503	0.4	0.8	0.4	0.3	0.2	0.3	0.4	148,049
Precipitous labor . . . . .	4,110,907	74,036	18.7	14.5	18.0	18.7	20.6	21.9	21.9	148,049
Prolonged labor . . . . .	4,110,907	41,003	10.3	11.5	10.8	10.2	9.5	9.9	10.8	148,049
Dysfunctional labor . . . . .	4,110,907	116,883	29.5	28.8	29.1	30.5	28.7	29.8	32.4	148,049
Breech/Malpresentation . . . . .	4,110,907	150,937	38.1	30.2	32.9	39.1	43.3	48.0	53.8	148,049
Cephalopelvic disproportion <sup>3,4</sup> . . . . .	3,634,317	124,785	35.2	34.1	34.5	37.3	34.4	34.2	33.9	91,806
Cord prolapse <sup>5</sup> . . . . .	4,042,798	10,618	2.7	2.4	2.6	2.7	2.9	3.2	3.8	148,570
Anesthetic complication <sup>4</sup> . . . . .	3,793,161	1,550	0.4	0.3	0.4	0.4	0.5	0.6	0.6	96,498
Fetal distress <sup>4</sup> . . . . .	3,793,161	158,608	42.9	49.5	43.5	40.6	39.9	44.9	55.7	96,498
White										
Febrile . . . . .	3,241,273	38,209	12.2	15.0	12.6	12.3	11.0	10.8	10.3	116,816
Meconium, moderate/heavy . . . . .	3,241,273	175,479	56.2	59.9	56.1	54.6	55.0	58.9	65.6	116,816
Premature rupture of membrane . . . . .	3,241,273	98,403	31.5	30.6	29.7	31.1	32.5	36.0	38.9	116,816
Abruptio placenta . . . . .	3,241,273	18,298	5.9	5.9	5.5	5.6	6.0	7.1	8.3	116,816
Placenta previa . . . . .	3,241,273	10,822	3.5	1.2	2.1	3.4	4.7	6.9	8.0	116,816
Other excessive bleeding . . . . .	3,241,273	16,529	5.3	5.0	5.0	5.1	5.5	6.4	8.0	116,816
Seizures during labor . . . . .	3,241,273	1,082	0.3	0.7	0.4	0.3	0.2	0.3	*	116,816
Precipitous labor . . . . .	3,241,273	55,760	17.8	12.9	16.3	17.9	20.3	21.8	21.6	116,816
Prolonged labor . . . . .	3,241,273	33,440	10.7	12.4	11.3	10.5	9.6	10.0	11.2	116,816
Dysfunctional labor . . . . .	3,241,273	95,953	30.7	31.1	30.9	31.4	29.3	30.5	34.1	116,816
Breech/Malpresentation . . . . .	3,241,273	125,420	40.1	33.9	35.0	40.6	44.2	49.2	54.1	116,816
Cephalopelvic disproportion <sup>3,4</sup> . . . . .	2,835,494	102,222	36.9	36.7	37.2	38.8	35.1	34.9	34.4	68,877
Cord prolapse <sup>5</sup> . . . . .	3,182,762	8,355	2.7	2.3	2.6	2.7	2.9	3.2	3.8	117,082
Anesthetic complication <sup>4</sup> . . . . .	2,973,984	1,241	0.4	0.4	0.4	0.4	0.5	0.6	0.7	72,685
Fetal distress <sup>4</sup> . . . . .	2,973,984	118,222	40.7	47.9	42.1	38.7	37.4	42.3	53.7	72,685
Black										
Febrile . . . . .	682,602	10,481	16.0	19.5	15.8	14.8	14.2	12.1	14.0	26,202
Meconium, moderate/heavy . . . . .	682,602	55,193	84.1	81.7	81.0	86.1	88.3	90.4	95.0	26,202
Premature rupture of membrane . . . . .	682,602	25,164	38.3	36.3	34.5	39.8	44.7	44.2	49.5	26,202
Abruptio placenta . . . . .	682,602	4,625	7.0	6.1	6.8	6.9	8.4	9.5	8.7	26,202
Placenta previa . . . . .	682,602	2,217	3.4	1.4	2.4	3.9	5.9	7.8	7.5	26,202
Other excessive bleeding . . . . .	682,602	3,041	4.6	3.8	4.3	4.8	5.6	6.2	7.7	26,202
Seizures during labor . . . . .	682,602	356	0.5	1.0	0.5	0.4	0.3	*	*	26,202
Precipitous labor . . . . .	682,602	14,166	21.6	17.8	22.8	22.9	22.6	22.5	21.2	26,202
Prolonged labor . . . . .	682,602	5,211	7.9	8.7	8.0	7.5	7.3	7.9	8.2	26,202
Dysfunctional labor . . . . .	682,602	16,391	25.0	24.3	23.7	26.3	25.7	27.0	26.0	26,202
Breech/Malpresentation . . . . .	682,602	19,171	29.2	22.0	25.5	31.3	38.5	43.4	52.8	26,202
Cephalopelvic disproportion <sup>3,4</sup> . . . . .	622,615	16,480	27.3	29.2	25.7	28.3	27.2	25.3	24.5	19,152
Cord prolapse <sup>5</sup> . . . . .	680,081	1,862	2.8	2.4	2.5	3.0	3.5	3.7	3.8	26,229
Anesthetic complication <sup>4</sup> . . . . .	639,512	241	0.4	0.4	0.3	0.4	0.4	*	*	19,935
Fetal distress <sup>4</sup> . . . . .	639,512	33,985	54.9	54.5	50.6	54.4	59.8	66.3	75.3	19,935

<sup>1</sup>Total number of births to residents of areas reporting specified complication.  
<sup>2</sup>Includes races other than white and black.  
<sup>3</sup>New York City (but not New York State) reports this complication.  
<sup>4</sup>Texas does not report this complication.  
<sup>5</sup>Figures for this complication do not include Arizona: see Technical notes.

Table 13. Live births by method of delivery and rates of cesarean delivery and vaginal birth after previous cesarean, by age and race of mother: United States, 1991

Age and race of mother	All births	Births by method of delivery						Cesarean delivery rate		Rate of vaginal birth after previous cesarean <sup>3</sup>
		Vaginal			Cesarean			Total <sup>1</sup>	Primary <sup>2</sup>	
		Total	After previous cesarean	Not stated	Total	Primary	Repeat			
All races <sup>4</sup>	4,110,907	3,100,891	90,690	905,077	569,195	335,882	104,939	22.6	15.9	21.3
Under 20 years	531,591	432,546	4,015	84,966	72,988	11,978	14,079	16.4	14.6	25.1
20-24 years	1,089,692	850,344	19,756	211,872	144,346	67,526	27,476	19.9	14.8	22.6
25-29 years	1,219,965	912,659	29,694	276,526	168,853	107,673	30,780	23.3	16.1	21.6
30-34 years	884,862	640,596	26,275	221,320	121,617	99,703	22,946	25.7	16.5	20.9
35-39 years	330,993	229,064	9,707	93,543	51,164	42,379	8,386	29.0	18.9	18.6
40-49 years	53,804	35,682	1,243	16,850	10,227	6,623	1,272	32.1	22.9	15.8
White	3,241,273	2,434,900	72,564	723,088	452,534	270,554	83,285	22.9	16.1	21.1
Under 20 years	357,548	289,865	2,169	57,912	50,736	7,176	9,771	16.7	15.0	23.2
20-24 years	831,233	646,432	14,181	163,950	113,595	50,355	20,851	20.2	15.2	22.0
25-29 years	1,000,138	746,892	24,290	227,977	139,192	88,785	25,269	23.4	16.2	21.5
30-34 years	736,816	534,121	22,526	183,401	99,595	83,806	19,294	25.6	16.3	21.2
35-39 years	272,511	188,936	8,347	76,503	41,398	35,105	7,072	28.8	18.6	19.2
40-49 years	43,027	28,654	1,051	13,345	8,018	5,327	1,028	31.8	22.5	16.5
Black	682,602	519,047	14,213	145,583	92,645	52,938	17,972	21.9	15.5	21.2
Under 20 years	157,375	128,270	1,730	25,101	20,539	4,562	4,004	16.4	14.0	27.5
20-24 years	218,918	170,784	4,856	42,275	26,633	15,642	5,859	19.8	13.8	23.7
25-29 years	163,052	120,550	4,207	38,154	22,358	15,796	4,348	24.0	16.1	21.0
30-34 years	99,637	70,148	2,486	26,819	15,251	11,568	2,670	27.7	18.4	17.7
35-39 years	37,362	25,302	822	11,136	6,519	4,617	924	30.6	21.0	15.1
40-49 years	6,258	3,993	112	2,098	1,345	753	167	34.4	25.7	12.9

<sup>1</sup>Percent of all live births that are by cesarean delivery.

<sup>2</sup>Number of primary cesareans per 100 live births to women who have not had a previous cesarean.

<sup>3</sup>Number of vaginal births after previous cesarean delivery per 100 live births to women with a previous cesarean delivery.

<sup>4</sup>Includes races other than white and black.

Table 14. Rates of cesarean delivery and vaginal birth after previous cesarean, by selected medical risk factors, complications of labor and/or delivery, and obstetric procedures: United States, 1991

Medical risk factor, complication, and obstetric procedure	All births with specified condition and/or procedure	Cesarean delivery rate		Rate of vaginal birth after previous cesarean <sup>3</sup>
		Total <sup>1</sup>	Primary <sup>2</sup>	
<b>Medical risk factors</b>				
Anemia . . . . .	73,970	24.7	17.4	22.8
Cardiac disease . . . . .	14,421	27.0	19.9	23.0
Acute or chronic lung disease . . . . .	14,465	27.4	19.6	22.7
Diabetes . . . . .	92,345	36.8	27.0	15.3
Genital herpes <sup>4,5</sup> . . . . .	28,356	44.0	38.3	23.3
Hydramnios/Oligohydramnios <sup>4</sup> . . . . .	25,531	43.1	37.8	18.3
Hemoglobinopathy <sup>4</sup> . . . . .	1,945	26.9	20.0	23.3
Hypertension, chronic . . . . .	25,703	41.1	32.1	14.5
Eclampsia . . . . .	14,063	51.7	47.5	11.1
Incompetent cervix <sup>4</sup> . . . . .	9,055	30.3	22.4	21.9
Renal disease . . . . .	8,705	27.2	20.3	25.2
Rh sensitization <sup>6</sup> . . . . .	23,568	24.0	17.0	24.1
Uterine bleeding <sup>5</sup> . . . . .	29,303	33.2	26.1	21.3
<b>Complications of labor and/or delivery</b>				
Febrile . . . . .	51,488	35.1	32.9	39.9
Premature rupture of membrane . . . . .	129,088	28.7	25.2	31.6
Abruptio placenta . . . . .	23,810	57.8	53.7	15.7
Placenta previa . . . . .	13,864	82.5	78.5	3.4
Other excessive bleeding . . . . .	21,343	34.0	26.4	21.6
Seizures during labor . . . . .	1,503	49.3	46.7	22.8
Precipitous labor (less than 3 hours) . . . . .	74,036	1.8	1.3	83.0
Prolonged labor (more than 20 hours) . . . . .	41,003	39.6	38.2	40.1
Dysfunctional labor . . . . .	116,883	66.5	64.7	16.4
Breech/Malpresentation . . . . .	150,937	85.2	83.8	4.7
Cephalopelvic disproportion <sup>7,8</sup> . . . . .	124,785	97.8	97.6	1.0
Cord prolapse <sup>9</sup> . . . . .	10,618	60.9	58.7	17.5
Anesthetic complications <sup>8</sup> . . . . .	1,550	53.6	44.3	12.6
Fetal distress <sup>8</sup> . . . . .	158,608	61.4	59.4	18.2
<b>Obstetric procedures</b>				
Electronic fetal monitoring . . . . .	3,020,280	21.7	16.0	26.1
Induction of labor . . . . .	418,346	21.3	19.6	51.6
Stimulation of labor . . . . .	483,025	17.0	15.6	60.1
Tocolysis . . . . .	64,121	31.5	25.6	22.2
Ultrasound <sup>10</sup> . . . . .	2,135,842	25.3	17.9	21.0

<sup>1</sup>Percent of all live births by cesarean delivery.<sup>2</sup>Number of primary cesareans per 100 live births to women who have not had a previous cesarean.<sup>3</sup>Number of vaginal births after previous cesarean delivery per 100 live births to women with a previous cesarean.<sup>4</sup>New York City (but not New York State) reports this risk factor.<sup>5</sup>Texas does not report this risk factor.<sup>6</sup>Kansas does not report this risk factor.<sup>7</sup>New York City (but not New York State) reports this complication.<sup>8</sup>Texas does not report this complication.<sup>9</sup>Figures for this complication do not include Arizona; see Technical notes.<sup>10</sup>Illinois does not report this procedure.

**Errata**

This replaces table 15

**Table 15. Live births by day of week and index of occurrence by method of delivery, day of occurrence, and race of mother: United States, 1991**

Day of week and race of mother	All births	Index of occurrence <sup>1</sup>				
		Total <sup>2</sup>	Vaginal	Method of delivery		
				Total	Cesarean	
					Primary	Repeat
All races <sup>3</sup>	4,110,907	100.0	100.0	100.0	100.0	100.0
Sunday	466,706	79.7	85.9	58.7	70.2	39.3
Monday	601,244	102.7	101.2	108.0	99.6	122.1
Tuesday	651,952	109.2	106.8	117.5	113.7	123.8
Wednesday	626,733	107.0	105.2	113.2	111.1	116.8
Thursday	628,656	107.3	105.3	114.0	110.8	119.4
Friday	635,814	108.6	104.9	120.8	113.9	132.5
Saturday	499,802	85.3	90.6	67.5	80.4	45.7
White	3,241,273	100.0	100.0	100.0	100.0	100.0
Sunday	359,720	77.9	84.4	56.6	68.7	36.3
Monday	476,320	103.2	101.6	108.8	100.0	123.7
Tuesday	518,801	110.2	107.8	118.4	114.8	124.6
Wednesday	497,220	107.7	105.9	113.6	111.4	117.1
Thursday	498,314	107.9	105.9	114.6	111.2	120.3
Friday	504,768	109.3	105.3	122.4	114.9	134.9
Saturday	386,130	83.6	89.1	65.3	78.7	42.7
Black	682,602	100.0	100.0	100.0	100.0	100.0
Sunday	83,981	86.4	91.5	68.2	77.1	52.5
Monday	97,628	100.4	99.5	104.1	98.2	114.4
Tuesday	104,616	105.5	103.0	114.3	110.1	121.6
Wednesday	101,854	104.7	102.9	111.9	109.8	115.6
Thursday	102,163	105.1	103.3	111.0	108.2	115.9
Friday	102,787	105.7	103.3	113.3	109.1	120.7
Saturday	89,573	92.1	96.4	77.0	87.3	58.8

<sup>1</sup>Index is the ratio of the average number of births by a specified method of delivery on a given day of the week to the average daily number of births by a specified method of delivery for the year, multiplied by 100.

<sup>2</sup>Includes method of delivery not stated.

<sup>3</sup>Includes races other than white and black.

**Table 16. Live births with selected abnormal conditions of newborn and rates for selected abnormal conditions by age and race of mother: United States, 1991**

[Rates are number of live births with specified abnormal condition per 1,000 live births in specified group]

Abnormal condition and race of mother	All births <sup>1</sup>	Abnormal condition reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
All races <sup>2</sup>		Number		Rate						Number
Anemia . . . . .	4,110,907	4,866	1.2	1.5	1.3	1.2	1.1	1.1	1.2	194,998
Birth injury <sup>3</sup> . . . . .	3,680,939	7,192	2.0	1.9	2.1	2.1	2.0	2.0	1.7	135,215
Fetal alcohol syndrome <sup>4,5</sup> . . . . .	3,879,992	517	0.1	0.1	0.1	0.2	0.2	0.1	*	191,262
Hyaline membrane disease/RDS . . . . .	4,110,907	23,916	6.1	7.7	6.3	5.7	5.5	6.1	6.4	194,998
Meconium aspiration syndrome <sup>5</sup> . . . . .	3,952,063	11,051	2.9	3.1	2.9	2.9	2.9	3.2	4.0	190,119
Assisted ventilation less than 30 minutes <sup>6</sup> . . . . .	3,818,274	51,113	14.1	15.4	14.4	13.6	13.4	14.0	14.9	188,679
Assisted ventilation 30 minutes or longer <sup>6</sup> . . . . .	3,818,274	27,143	7.5	9.2	7.4	6.9	7.0	8.2	9.1	188,679
Seizures . . . . .	4,110,907	3,108	0.8	0.8	0.8	0.8	0.8	0.8	0.8	194,998
White										
Anemia . . . . .	3,241,273	3,515	1.1	1.3	1.2	1.1	1.1	1.1	1.1	155,965
Birth injury <sup>3</sup> . . . . .	2,876,019	6,233	2.2	2.2	2.4	2.3	2.1	2.1	1.9	104,796
Fetal alcohol syndrome <sup>4,5</sup> . . . . .	3,040,519	316	0.1	0.1	0.1	0.1	0.1	0.1	*	153,023
Hyaline membrane disease/RDS . . . . .	3,241,273	18,902	6.1	7.9	6.4	5.7	5.4	6.2	6.3	155,965
Meconium aspiration syndrome <sup>5</sup> . . . . .	3,102,783	8,113	2.7	3.0	2.7	2.7	2.7	2.9	3.8	151,920
Assisted ventilation less than 30 minutes <sup>6</sup> . . . . .	3,024,566	40,946	14.3	16.0	14.8	13.8	13.4	14.2	14.8	151,811
Assisted ventilation 30 minutes or longer <sup>6</sup> . . . . .	3,024,566	20,544	7.2	9.2	7.0	6.6	6.6	8.0	8.6	151,811
Seizures . . . . .	3,241,273	2,312	0.7	0.8	0.7	0.8	0.7	0.7	0.9	155,965
Black										
Anemia . . . . .	682,602	1,165	1.8	1.9	1.9	1.8	1.5	1.5	*	32,026
Birth injury <sup>3</sup> . . . . .	629,490	677	1.1	1.2	1.1	1.1	1.1	1.4	*	24,782
Fetal alcohol syndrome <sup>4,5</sup> . . . . .	658,481	152	0.2	*	0.1	0.3	0.4	*	*	31,308
Hyaline membrane disease/RDS . . . . .	682,602	4,446	6.8	7.5	6.6	6.2	6.9	7.2	8.9	32,026
Meconium aspiration syndrome <sup>5</sup> . . . . .	665,705	2,395	3.8	3.3	3.6	3.9	4.3	4.6	5.4	31,278
Assisted ventilation less than 30 minutes <sup>6</sup> . . . . .	620,440	8,060	13.6	13.7	13.2	13.5	14.6	14.2	17.0	29,875
Assisted ventilation 30 minutes or longer <sup>6</sup> . . . . .	620,440	5,651	9.6	9.5	9.1	9.2	10.6	11.3	14.4	29,875
Seizures . . . . .	682,602	691	1.1	1.0	1.1	1.0	1.0	1.3	*	32,026

<sup>1</sup>Total number of births to residents of areas reporting specified condition.  
<sup>2</sup>Includes races other than white and black.  
<sup>3</sup>Massachusetts, Nebraska, and Texas do not report this condition.  
<sup>4</sup>Wisconsin does not report this condition.  
<sup>5</sup>New York City (but not New York State) reports this condition.  
<sup>6</sup>New York State and New York City do not report this condition.

**Table 17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 48 reporting States and the District of Columbia, 1991**

[Rates are number of live births with specified congenital anomaly per 100,000 live births in specified group]

Congenital anomaly and race of mother	All births <sup>1</sup>	Congenital anomaly reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
All races <sup>2</sup>				Rate						Number
Anencephalus . . . . .	3,790,474	665	18.4	21.8	18.9	18.7	16.8	14.8	*	181,570
Spina bifida/Meningocele . . . . .	3,790,474	901	25.0	31.4	26.3	22.1	23.2	22.9	*	181,570
Hydrocephalus . . . . .	3,790,474	973	27.0	33.1	27.5	25.1	22.5	32.1	*	181,570
Microcephalus . . . . .	3,790,474	311	8.6	11.3	9.6	7.4	6.4	8.1	*	181,570
Other central nervous system anomalies . . . . .	3,790,474	859	23.8	23.7	23.8	21.6	24.9	27.2	*	181,570
Heart malformations . . . . .	3,790,474	4,533	125.6	117.1	122.9	118.1	130.8	148.1	221.2	181,570
Other circulatory/respiratory anomalies . . . . .	3,790,474	4,765	132.0	138.9	129.9	127.4	129.6	142.1	192.7	181,570
Rectal atresia/stenosis . . . . .	3,790,474	360	10.0	11.1	9.3	10.2	10.3	8.5	*	181,570
Tracheo-esophageal fistula/Esophageal atresia . . . . .	3,790,474	561	15.5	16.1	14.1	14.4	17.3	18.3	*	181,570
Omphalocele/Gastroschisis . . . . .	3,790,474	872	24.2	40.9	31.4	17.2	14.7	21.2	*	181,570
Other gastrointestinal anomalies . . . . .	3,790,474	1,078	29.9	31.2	31.9	27.1	30.0	30.3	50.4	181,570
Malformed genitalia . . . . .	3,790,474	2,814	78.0	76.1	75.6	75.2	84.7	79.0	94.2	181,570
Renal agenesis . . . . .	3,790,474	334	9.3	9.6	9.8	8.2	11.1	*	*	181,570
Other urogenital anomalies . . . . .	3,790,474	4,243	117.6	108.3	111.2	123.9	122.6	119.9	102.9	181,570
Cleft lip/palate . . . . .	3,790,474	3,140	87.0	86.7	86.1	87.0	84.3	91.7	124.8	181,570
Polydactyly/Syndactyly/Adactyly . . . . .	3,790,474	3,123	86.5	117.3	94.4	79.4	70.8	75.1	96.4	181,570
Club foot . . . . .	3,790,474	2,084	57.7	61.2	58.1	57.0	56.6	57.8	50.4	181,570
Diaphragmatic hernia . . . . .	3,790,474	427	11.8	12.6	11.4	11.8	13.0	9.5	*	181,570
Other musculoskeletal/integumental anomalies . . . . .	3,790,474	7,076	196.1	199.7	189.3	192.0	200.7	214.0	208.1	181,570
Down's syndrome . . . . .	3,790,474	1,788	49.5	29.8	30.7	37.0	56.8	122.7	374.5	181,570
Other chromosomal anomalies . . . . .	3,790,474	1,734	48.0	45.9	48.2	41.3	45.4	70.5	129.2	181,570
White										
Anencephalus . . . . .	3,001,528	565	19.8	26.1	21.0	19.3	18.0	15.3	*	145,359
Spina bifida/Meningocele . . . . .	3,001,528	775	27.1	37.7	29.9	24.0	23.3	24.3	*	145,359
Hydrocephalus . . . . .	3,001,528	813	28.5	38.0	29.4	26.9	23.3	31.1	*	145,359
Microcephalus . . . . .	3,001,528	240	8.4	11.2	10.4	7.2	5.5	*	*	145,359
Other central nervous system anomalies . . . . .	3,001,528	678	23.7	24.3	24.6	21.2	24.1	25.6	*	145,359
Heart malformations . . . . .	3,001,528	3,648	127.7	118.3	123.4	117.8	134.5	154.7	245.6	145,359
Other circulatory/respiratory anomalies . . . . .	3,001,528	3,861	135.2	153.1	135.1	129.1	128.9	142.3	188.3	145,359
Rectal atresia/stenosis . . . . .	3,001,528	297	10.4	12.4	10.1	10.6	10.3	8.9	*	145,359
Tracheo-esophageal fistula/Esophageal atresia . . . . .	3,001,528	490	17.2	18.4	16.1	15.6	18.5	21.3	*	145,359
Omphalocele/Gastroschisis . . . . .	3,001,528	687	24.1	48.9	32.1	16.2	13.3	20.9	*	145,359
Other gastrointestinal anomalies . . . . .	3,001,528	865	30.3	32.1	32.3	26.5	30.5	32.0	*	145,359
Malformed genitalia . . . . .	3,001,528	2,387	83.6	82.8	82.7	80.0	91.2	78.4	95.5	145,359
Renal agenesis . . . . .	3,001,528	273	9.6	10.0	10.8	8.3	11.3	*	*	145,359
Other urogenital anomalies . . . . .	3,001,528	3,703	129.6	122.9	122.0	135.4	135.3	130.0	106.4	145,359
Cleft lip/palate . . . . .	3,001,528	2,717	95.1	104.9	97.2	93.5	87.9	94.2	139.2	145,359
Polydactyly/Syndactyly/Adactyly . . . . .	3,001,528	1,712	59.9	70.6	61.9	57.0	55.2	59.2	84.6	145,359
Club foot . . . . .	3,001,528	1,833	64.2	72.2	64.8	63.8	61.2	61.8	57.3	145,359
Diaphragmatic hernia . . . . .	3,001,528	361	12.6	12.4	12.4	12.7	14.1	9.8	*	145,359
Other musculoskeletal/integumental anomalies . . . . .	3,001,528	5,742	201.0	207.9	193.1	198.2	203.5	219.5	210.2	145,359
Down's syndrome . . . . .	3,001,528	1,576	55.2	35.2	33.9	40.0	62.6	130.8	414.9	145,359
Other chromosomal anomalies . . . . .	3,001,528	1,347	47.2	43.9	47.1	40.2	44.9	70.3	136.5	145,359

See footnotes at end of table.

Table 17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 48 reporting States and the District of Columbia, 1991—Con.

[Rates are number of live births with specified congenital anomaly per 100,000 live births in specified group]

Congenital anomaly and race of mother	All births <sup>1</sup>	Congenital anomaly reported	All ages	Age of mother						Not stated
				Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–49 years	
Black	Number	Rate	Number	Rate	Rate	Rate	Rate	Rate	Rate	Number
Anencephalus . . . . .	619,865	73	12.4	*	12.0	15.2	*	*	*	29,594
Spina bifida/Meningocele . . . . .	619,865	107	18.1	18.4	14.5	15.9	28.9	*	*	29,594
Hydrocephalus . . . . .	619,865	135	22.9	23.4	21.8	18.1	*	*	*	29,594
Microcephalus . . . . .	619,865	55	9.3	*	*	*	*	*	*	29,594
Other central nervous system anomalies . . . . .	619,865	138	23.4	19.9	20.3	27.5	31.4	*	*	29,594
Heart malformations . . . . .	619,865	726	123.0	117.8	121.6	125.7	123.0	144.3	*	29,594
Other circulatory/respiratory anomalies . . . . .	619,865	667	113.0	104.3	105.0	111.3	135.1	131.1	*	29,594
Rectal atresia/stenosis . . . . .	619,865	46	7.8	*	*	*	*	*	*	29,594
Tracheo-esophageal fistula/Esophageal atresia . . . . .	619,865	51	8.6	*	*	*	*	*	*	29,594
Omphalocele/Gastroschisis . . . . .	619,865	158	26.8	23.4	30.1	25.3	26.5	*	*	29,594
Other gastrointestinal anomalies . . . . .	619,865	178	30.2	29.1	28.6	34.0	32.6	*	*	29,594
Malformed genitalia . . . . .	619,865	333	56.4	63.1	49.9	47.7	55.5	108.2	*	29,594
Renal agenesis . . . . .	619,865	48	8.1	*	*	*	*	*	*	29,594
Other urogenital anomalies . . . . .	619,865	412	69.8	75.9	69.1	67.2	59.1	85.2	*	29,594
Cleft lip/palate . . . . .	619,865	244	41.3	44.0	37.9	37.6	49.4	*	*	29,594
Polydactyly/Syndactyly/Adactyly . . . . .	619,865	1,350	228.7	227.7	230.7	237.7	213.5	219.7	*	29,594
Club foot . . . . .	619,865	205	34.7	38.3	35.9	28.9	35.0	*	*	29,594
Diaphragmatic hernia . . . . .	619,865	48	8.1	*	*	*	*	*	*	29,594
Other musculoskeletal/integumental . . . . .	619,865	992	168.1	168.1	168.9	162.5	178.5	170.5	*	29,594
Down's syndrome . . . . .	619,865	151	25.6	18.4	21.8	20.2	24.1	82.0	*	29,594
Other chromosomal anomalies . . . . .	619,865	231	39.1	36.2	36.9	36.8	39.8	*	*	29,594

<sup>1</sup>Total number of births to residents of areas reporting specified congenital anomaly.  
<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for New Mexico and New York, which did not require reporting of congenital anomalies.

## Technical notes

### Source of data

Data shown in this report are based on 100 percent of the birth certificates in all States and the District of Columbia. The data are provided to the National Center for Health Statistics through the Vital Statistics Cooperative Program. Information in this report on selected maternal and infant health characteristics was derived from items on the 1989 revision of the U.S. Standard Certificate of Live Birth, shown in figure 1.

### Race of mother

Birth data are tabulated by the race of the mother as reported directly on the birth certificate. If race of mother was not stated, it was imputed as that of the father, if known. If neither race was stated, race of mother was imputed as the race of the mother on the preceding record with known race.

## Definitions of medical terms

The following definitions are adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics officials for the Association for Vital Records and Health Statistics (63).

### Medical risk factors for this pregnancy

**Anemia**—Hemoglobin level of less than 10.0 g/dL during pregnancy, or a hematocrit of less than 30 percent during pregnancy.

**Cardiac disease**—Disease of the heart.

**Acute or chronic lung disease**—Disease of the lungs during pregnancy.

**Diabetes**—Metabolic disorder characterized by excessive discharge of urine and persistent thirst; includes juvenile onset, adult onset, and gestational diabetes during pregnancy.

**Genital herpes**—Infection of the skin of the genital area by herpes simplex virus.

**Hydramnios/Oligohydramnios**—Any noticeable excess (hydramnios) or lack (oligohydramnios) of amniotic fluid.

**Hemoglobinopathy**—A blood disorder caused by alteration in the genetically determined molecular structure of hemoglobin (for example, sickle cell anemia).

**Hypertension, chronic**—Blood pressure persistently greater than 140/90, diagnosed prior to onset of pregnancy or before the 20th week of gestation.

**Hypertension, pregnancy-associated**—An increase in blood pressure of at least 30 mm Hg systolic or 15 mm Hg diastolic on two measurements taken 6 hours apart after the 20th week of gestation.

**Eclampsia**—The occurrence of convulsions and/or coma unrelated to other cerebral conditions in women with signs and symptoms of preeclampsia.

<p><b>38a. MEDICAL RISK FACTORS FOR THIS PREGNANCY</b> (Check all that apply)</p> <p>Anemia (Hct. &lt;30/Hgb. &lt;10) ..... 01 <input type="checkbox"/></p> <p>Cardiac disease ..... 02 <input type="checkbox"/></p> <p>Acute or chronic lung disease ..... 03 <input type="checkbox"/></p> <p>Diabetes ..... 04 <input type="checkbox"/></p> <p>Genital herpes ..... 05 <input type="checkbox"/></p> <p>Hydramnios/Oligohydramnios ..... 06 <input type="checkbox"/></p> <p>Hemoglobinopathy ..... 07 <input type="checkbox"/></p> <p>Hypertension, chronic ..... 08 <input type="checkbox"/></p> <p>Hypertension, pregnancy-associated ..... 09 <input type="checkbox"/></p> <p>Eclampsia ..... 10 <input type="checkbox"/></p> <p>Incompetent cervix ..... 11 <input type="checkbox"/></p> <p>Previous infant 4000+ grams ..... 12 <input type="checkbox"/></p> <p>Previous preterm or small-for-gestational-age infant ..... 13 <input type="checkbox"/></p> <p>Renal disease ..... 14 <input type="checkbox"/></p> <p>Rh sensitization ..... 15 <input type="checkbox"/></p> <p>Uterine bleeding ..... 16 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 17 <input type="checkbox"/></p> <p>(Specify)</p>	<p><b>40. COMPLICATIONS OF LABOR AND/OR DELIVERY</b> (Check all that apply)</p> <p>Foetie (&gt;100°F. or 38°C.) ..... 01 <input type="checkbox"/></p> <p>Meconium, moderate/heavy ..... 02 <input type="checkbox"/></p> <p>Premature rupture of membrane (&gt;12 hours) ..... 03 <input type="checkbox"/></p> <p>Abruptio placentae ..... 04 <input type="checkbox"/></p> <p>Placenta previa ..... 05 <input type="checkbox"/></p> <p>Other excessive bleeding ..... 06 <input type="checkbox"/></p> <p>Seizures during labor ..... 07 <input type="checkbox"/></p> <p>Precipitous labor (&lt;3 hours) ..... 08 <input type="checkbox"/></p> <p>Prolonged labor (&gt;20 hours) ..... 09 <input type="checkbox"/></p> <p>Dysfunctional labor ..... 10 <input type="checkbox"/></p> <p>Breech/Malpresentation ..... 11 <input type="checkbox"/></p> <p>Cephalopelvic disproportion ..... 12 <input type="checkbox"/></p> <p>Cord prolapse ..... 13 <input type="checkbox"/></p> <p>Anesthetic complications ..... 14 <input type="checkbox"/></p> <p>Fetal distress ..... 15 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 16 <input type="checkbox"/></p> <p>(Specify)</p>	<p><b>43. CONGENITAL ANOMALIES OF CHILD</b> (Check all that apply)</p> <p>Anencephalus ..... 01 <input type="checkbox"/></p> <p>Spina bifida/Meningocele ..... 02 <input type="checkbox"/></p> <p>Hydrocephalus ..... 03 <input type="checkbox"/></p> <p>Microcephalus ..... 04 <input type="checkbox"/></p> <p>Other central nervous system anomalies (Specify) ..... 05 <input type="checkbox"/></p> <p>Heart malformations ..... 06 <input type="checkbox"/></p> <p>Other circulatory/respiratory anomalies (Specify) ..... 07 <input type="checkbox"/></p> <p>Rectal atresia/stenosis ..... 08 <input type="checkbox"/></p> <p>Tracheo-esophageal fistula/Esophageal atresia ..... 09 <input type="checkbox"/></p> <p>Omphalocele/Gastroschisis ..... 10 <input type="checkbox"/></p> <p>Other gastrointestinal anomalies (Specify) ..... 11 <input type="checkbox"/></p> <p>Malformed genitalia ..... 12 <input type="checkbox"/></p> <p>Renal agenesis ..... 13 <input type="checkbox"/></p> <p>Other urogenital anomalies (Specify) ..... 14 <input type="checkbox"/></p>
<p><b>38b. OTHER RISK FACTORS FOR THIS PREGNANCY</b> (Complete all items)</p> <p>Tobacco use during pregnancy ..... Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Average number cigarettes per day _____</p> <p>Alcohol use during pregnancy ..... Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Average number drinks per week _____</p> <p>Weight gained during pregnancy _____ lbs.</p>	<p><b>41. METHOD OF DELIVERY</b> (Check all that apply)</p> <p>Vaginal ..... 01 <input type="checkbox"/></p> <p>Vaginal birth after previous C-section ..... 02 <input type="checkbox"/></p> <p>Primary C-section ..... 03 <input type="checkbox"/></p> <p>Repeat C-section ..... 04 <input type="checkbox"/></p> <p>Forceps ..... 05 <input type="checkbox"/></p> <p>Vacuum ..... 06 <input type="checkbox"/></p>	<p>Cleft lip/palate ..... 15 <input type="checkbox"/></p> <p>Polydactyly/Syndactyly/Adactyly ..... 16 <input type="checkbox"/></p> <p>Club foot ..... 17 <input type="checkbox"/></p> <p>Diaphragmatic hernia ..... 18 <input type="checkbox"/></p> <p>Other musculoskeletal/integumental anomalies (Specify) ..... 19 <input type="checkbox"/></p> <p>Down's syndrome ..... 20 <input type="checkbox"/></p> <p>Other chromosomal anomalies (Specify) ..... 21 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 22 <input type="checkbox"/></p> <p>(Specify)</p>
<p><b>39. OBSTETRIC PROCEDURES</b> (Check all that apply)</p> <p>Amniocentesis ..... 01 <input type="checkbox"/></p> <p>Electronic fetal monitoring ..... 02 <input type="checkbox"/></p> <p>Induction of labor ..... 03 <input type="checkbox"/></p> <p>Stimulation of labor ..... 04 <input type="checkbox"/></p> <p>Tocolysis ..... 05 <input type="checkbox"/></p> <p>Ultrasound ..... 06 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 07 <input type="checkbox"/></p> <p>(Specify)</p>	<p><b>42. ABNORMAL CONDITIONS OF THE NEWBORN</b> (Check all that apply)</p> <p>Anemia (Hct. &lt;39/Hgb. &lt;13) ..... 01 <input type="checkbox"/></p> <p>Birth injury ..... 02 <input type="checkbox"/></p> <p>Fetal alcohol syndrome ..... 03 <input type="checkbox"/></p> <p>Hyaline membrane disease/RDS ..... 04 <input type="checkbox"/></p> <p>Meconium aspiration syndrome ..... 05 <input type="checkbox"/></p> <p>Assisted ventilation &lt;30 min ..... 06 <input type="checkbox"/></p> <p>Assisted ventilation ≥30 min ..... 07 <input type="checkbox"/></p> <p>Seizures ..... 08 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 09 <input type="checkbox"/></p> <p>(Specify)</p>	

Figure 1. New maternal and infant health items from the 1989 revision of the U.S. Standard Certificate of Live Birth

**Incompetent cervix**—Characterized by painless dilation of the cervix in the second trimester or early in the third trimester of pregnancy, with premature expulsion of membranes through the cervix and ballooning of the membranes into the vagina, followed by rupture of the membranes and subsequent expulsion of the fetus.

**Previous infant 4,000+ grams**—The birthweight of a previous live-born child was over 4,000 grams (8 pounds 14 ounces).

**Previous preterm or small-for-gestational-age infant**—Previous birth of an infant prior to term (before 37 completed weeks of gestation), or of an infant weighing less than the 10th percentile for gestational age using a standard weight-for-age chart.

**Renal disease**—Kidney disease.

**Rh Sensitization**—The process or state of becoming sensitized to the Rh factor as when an Rh-negative woman is pregnant with an Rh-positive fetus.

**Uterine bleeding**—Any clinically significant bleeding during the pregnancy, taking into consideration the stage of pregnancy; any second or third trimester bleeding of the uterus prior to the onset of labor.

### Obstetric procedures

**Amniocentesis**—Surgical transabdominal perforation of the uterus to obtain amniotic fluid to be used in the detection of genetic disorders, fetal abnormalities, and fetal lung maturity.

**Electronic fetal monitoring**—Monitoring with external devices applied to the maternal abdomen or with internal devices with an electrode attached to the fetal scalp and a catheter through the cervix into the uterus, to detect and record fetal heart tones and uterine contractions.

**Induction of labor**—The initiation of uterine contractions before the spontaneous onset of labor by medical and/or surgical means for the purpose of delivery.

**Stimulation of labor**—Augmentation of previously established labor by use of oxytocin.

**Tocolysis**—Use of medications to inhibit preterm uterine contractions to extend the length of pregnancy and, therefore, avoid a preterm birth.

**Ultrasound**—Visualization of the fetus and the placenta by means of sound waves.

### Complications of labor and/or delivery

**Febrile**—A fever greater than 100 degrees F or 38 C occurring during labor and/or delivery.

**Meconium, moderate/heavy**—Meconium consists of undigested debris from swallowed amniotic fluid, various products of secretion, and excretion and shedding by the gastrointestinal tract; moderate to heavy amounts of meconium in the amniotic fluid noted during labor and/or delivery.

**Premature rupture of membranes (more than 12 hours)**—Rupture of the membranes at any time during pregnancy and more than 12 hours before the onset of labor.

**Abruptio placenta**—Premature separation of a normally implanted placenta from the uterus.

**Placenta previa**—Implantation of the placenta over or near the internal opening of the cervix.

**Other excessive bleeding**—The loss of a significant amount of blood from conditions other than abruptio placenta or placenta previa.

**Seizures during labor**—Maternal seizures occurring during labor from any cause.

**Precipitous labor (less than 3 hours)**—Extremely rapid labor and delivery lasting less than 3 hours.

**Prolonged labor (more than 20 hours)**—Abnormally slow progress of labor lasting more than 20 hours.

**Dysfunctional labor**—Failure to progress in a normal pattern of labor.

**Breech/Malpresentation**—At birth, the presentation of the fetal buttocks rather than the head, or other malpresentation.

**Cephalopelvic disproportion**—The relationship of the size, presentation, and position of the fetal head to the maternal pelvis, which prevents dilation of the cervix and/or descent of the fetal head.

**Cord prolapse**—Premature expulsion of the umbilical cord in labor before the fetus is delivered.

**Anesthetic complications**—Any complication during labor and/or delivery brought on by an anesthetic agent or agents.

**Fetal distress**—Signs indicating fetal hypoxia (deficiency in amount of oxygen reaching fetal tissues).

### Abnormal conditions of the newborn

**Anemia**—Hemoglobin level of less than 13.0 g/dL, or a hematocrit of less than 39 percent.

**Birth injury**—Impairment of the infant's body function or structure due to adverse influences that occurred at birth.

**Fetal alcohol syndrome**—A syndrome of altered prenatal growth and development occurring in infants born of women who consumed excessive amounts of alcohol during pregnancy.

**Hyaline membrane disease/RDS**—A disorder primarily of prematurity, manifested clinically by respiratory distress and pathologically by pulmonary hyaline membranes and incomplete expansion of the lungs at birth.

**Meconium aspiration syndrome**—Aspiration of meconium by the fetus or newborn, affecting the lower respiratory system.

**Assisted ventilation (less than 30 minutes)**—A mechanical method of assisting respiration for newborns with respiratory failure.

**Assisted ventilation (30 minutes or more)**—Newborn placed on assisted ventilation for 30 minutes or longer.

**Seizures**—A seizure of any etiology.

### Congenital anomalies of child

**Anencephalus**—Absence of the cerebral hemispheres.

**Spina bifida/Meningocele**—Developmental anomaly characterized by defective closure of the bony encasement of the spinal cord, through which the cord and meninges may or may not protrude.

**Hydrocephalus**—Excessive accumulation of cerebrospinal fluid within the ventricles of the brain with consequent enlargement of the cranium.

**Microcephalus**—A significantly small head.

**Other central nervous system anomalies**—Other specified anomalies of the brain, spinal cord, and nervous system.

**Heart malformations**—Congenital anomalies of the heart.

*Other circulatory/respiratory anomalies*—Other specified anomalies of the circulatory and respiratory systems.

*Rectal atresia/stenosis*—Congenital absence, closure, or narrowing of the rectum.

*Tracheo-esophageal fistula/Esophageal atresia*—An abnormal passage between the trachea and the esophagus; esophageal atresia is the congenital absence or closure of the esophagus.

*Omphalocele/Gastroschisis*—An omphalocele is a protrusion of variable amounts of abdominal viscera from a midline defect at the base of the umbilicus. In gastroschisis, the abdominal viscera protrude through an abdominal wall defect, usually on the right side of the umbilical cord insertion.

*Other gastrointestinal anomalies*—Other specified congenital anomalies of the gastrointestinal system.

*Malformed genitalia*—Congenital anomalies of the reproductive organs.

*Renal agenesis*—One or both kidneys are completely absent.

*Other urogenital anomalies*—Other specified congenital anomalies of the organs concerned in the production and excretion of urine, together with organs of reproduction.

*Cleft lip/palate*—Cleft lip is a fissure or elongated opening of the lip; cleft palate is a fissure in the roof of the mouth. These are failures of embryonic development.

*Polydactyly/Syndactyly/Adactyly*—Polydactyly is the presence of more than

five digits on hands and/or feet; syndactyly is having fused or webbed fingers and/or toes; adactyly is the absence of fingers and/or toes.

*Club foot*—Deformities of the foot, which is twisted out of shape or position.

*Diaphragmatic hernia*—Herniation of the abdominal contents through the diaphragm into the thoracic cavity usually resulting in respiratory distress.

*Other musculoskeletal/integumental anomalies*—Other specified congenital anomalies of the muscles, skeleton, or skin.

*Down's syndrome*—The most common chromosomal defect with most cases resulting from an extra chromosome (trisomy 21).

*Other chromosomal anomalies*—All other chromosomal aberrations.

## Method of delivery

Several rates are computed for method of delivery. The overall cesarean section rate or *total cesarean* rate is computed as the percent of all births that were delivered by cesarean section. The *primary cesarean* rate is a measure that relates the number of women having a primary cesarean delivery to all women giving birth who have never had a cesarean delivery. The denominator for this rate includes all births less those with method of delivery classified as repeat cesarean, *vaginal birth after previous cesarean*, or method not stated. The rate

for vaginal birth after previous cesarean (VBAC) delivery is computed by relating all VBAC deliveries to the sum of VBAC and repeat cesarean deliveries, that is, to women with a previous cesarean section.

## Computation of percents, percent distributions, and medians

Births with unknown medical and life-style risk factors of pregnancy and birth, obstetric procedures, abnormal conditions and congenital anomalies of infant, and method of delivery were subtracted from the figures for total births that were used as denominators before percents, percent distributions, and medians were computed. Computations of median weight gain were based on ungrouped data. An asterisk is shown in place of any derived statistic based on fewer than 20 births in the numerator or denominator.

## Random variation

Although the birth data in this report are not subject to sampling error, they may be affected by random variation in the number of births involved. Many of the checkbox items on the birth certificate refer to extremely rare events. When the number of events is small, perhaps less than 100, and the probability of such an event is small, considerable caution must be observed in interpreting the data.

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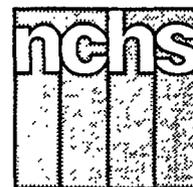
**National Center for Health Statistics**

Director  
Manning Feinleib, M.D., Dr. P.H.

Deputy Director  
Jack R. Anderson

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# Monthly Vital Statistics Report



Final Data From the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

## Advance Report of Maternal and Infant Health Data From the Birth Certificate, 1990

### Contents

Introduction.....	1
Medical risk factors.....	2
Tobacco use.....	3
Alcohol use.....	4
Maternal weight gain.....	5
Obstetric procedures.....	6
Complications of labor and/or delivery.....	6
Method of delivery.....	7
Abnormal conditions of newborn.....	8
Congenital anomalies.....	8
References.....	9
List of tables.....	11
Technical notes.....	29

life-style risk factors of pregnancy and birth, obstetric procedures performed, method of delivery, abnormal conditions and congenital anomalies of the newborn, expanded information on birth attendant and place of delivery, and questions on the Hispanic origin of the parents. This major enhancement of medical and health data available on an annual basis for mothers and babies greatly expands the scope of information on pregnancy outcome in the United States (1,2).

The new information was first presented in an earlier report (3). This is the second report focusing on the new data. Expanded information on 1990 births by attendant and place of delivery as well as Hispanic origin of the parents was also presented in an earlier report (4).

The data available for 1989 and subsequent years reflect a significant departure from prior years in birth certificate content and format. Checkboxes are used extensively to obtain the detailed medical and health data

requested. Uniform reporting and a clear focus on the requested data are facilitated by this new format.

As of 1990, all States (except Oklahoma) and the District of Columbia had implemented the new birth certificate. Oklahoma revised its certificate as of 1991. Although most States adopted the revision in its entirety, there are some exceptions. Some States did not include every item in their revisions: Items such as tobacco and alcohol use are not reported by every State. In addition, some States reporting a given item did not include every checkbox for that item. As a consequence, the total number of births in the areas reporting each factor or condition and the number of births for which the information is not stated will vary to reflect the differing number of States reporting the specific factor or condition. These variations are indicated in the tables.

Now that the new medical and health data have been available for 2 years, some improvements have been

### Introduction

Beginning with the 1989 data year, information has been available on a large number of important maternal and infant health factors affecting birth outcome. These include medical and

### Acknowledgments

This report was prepared in the Division of Vital Statistics. Stephanie J. Ventura, Selma M. Taffel, and T. J. Mathews of the Natality, Marriage, and Divorce Statistics Branch wrote the report. Donna Wright prepared statistical tables and Thomas Dunn provided content review. Manju Sharma provided computer programming support. The Registration Methods Branch and the Technical Services Branch provided consultation to State vital statistics offices regarding collection of the birth certificate data on which this report is based. This report was edited by Arlett Brown and typeset by Zung T. N. Le of the Publications Branch, Division of Data Services.



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National Center for Health Statistics



observed in the reporting completeness, and additional improvements are anticipated in future years as physicians, midwives, medical records personnel, and others become familiar with the birth certificate form. For all of these items except maternal weight gain, the percent of records with information not reported did not exceed 4 percent in 1990, about the same as in 1989 for States that provided data for the entire year (3). The number of births for which the information was not reported is shown in the tables for all items except weight gain.

Except for congenital anomalies, rates for medical and health information reported in the five checkbox items are expressed as the number of births with the specific factor per 1,000 total live births in the specified group; rates for congenital anomalies are expressed per 100,000 total live births in the specified group. Brief medical definitions for each of the factors as well as definitions of the rates by method of delivery are presented in the "Technical notes."

All data are shown by race of mother. For ease in writing, the terms "mothers" and "women" are used interchangeably for "births" or "infants," for example, "births to black mothers" or "black infants." Although data are shown by age and race in the tables and figures, this does not imply that differences shown are racial or genetic per se. Differences between white women and women of other races are often due to the lower income and educational levels of minority women, their limited access to health care and health insurance, the neighborhoods in which they live, and other factors.

### Medical risk factors

The presence of certain medical risk factors during pregnancy is often indicative of the potential for adverse pregnancy outcome, in particular low birthweight (weight of less than 2,500 grams or 5 lb 8 oz), and some birth defects (5). Low birthweight and birth defects in turn are among the leading causes of infant death (6) and are also implicated in infant and childhood morbidity. Information on the presence of

certain medical risk factors such as diabetes and anemia can be used to identify pregnant women who may require special prenatal care interventions (5,7). The presence or absence of medical risk factors was not reported for 3 percent of births in the reporting area comprised of 49 States and the District of Columbia. Oklahoma did not report this information.

The most frequently reported risk factor in 1990 as in 1989 was pregnancy-associated hypertension, with a rate of 27.2 cases per 1,000 total live births (table 1). High rates were also reported for diabetes and anemia, 21.3 and 18.2, respectively.

Young mothers under 20 years of age were at substantially elevated risk of anemia (27.7) and pregnancy-associated hypertension (32.1). The rates for pregnancy-associated hypertension generally declined with advancing maternal age, through ages 25–34 years (rates of 25.2–25.3) and then increased to 37.1 for mothers aged 40–49 years. A similar pattern of occurrence by maternal age was observed for anemia, acute or chronic lung disease, hydramnios/oligohydramnios, and eclampsia.

Rates for other medical risk factors increased steadily as age of mother advanced. For example, the rate for diabetes increased from 7.4 for mothers under 20 to 61.9 for mothers aged 40–49 years. Other risk factors with this pattern of occurrence by age include cardiac disease, chronic hypertension, incompetent cervix, previous infant of 4,000 grams (8 lb 14 oz) or more, previous preterm or small-for-gestational age (SGA) infant, Rh sensitization, and uterine bleeding. The rate for genital herpes also increased with age, but peaked at ages 35–39 years.

White and black mothers had relatively similar rates for many of the medical risk factors, and the patterns of the rates by age were comparable in many cases. Some important variations were noted, however. The overall prevalence of anemia for black mothers was more than twice that for white mothers, 34.7 compared with 14.6. The racial disparity in the rates persisted in all age groups and was greatest at ages

where the rates were relatively low, 25–29 and 30–34 years.

Chronic hypertension was also reported substantially more often for black than for white mothers, 10.8 compared with 5.7 overall. Rates for black mothers under age 30 were 1.5–2 times those for white mothers, but at ages 30 and older, the rates for black mothers were three times those for white mothers. Black mothers also were more likely to have eclampsia and to have had a previous preterm or SGA infant.

White mothers had a higher overall rate of diabetes than did black mothers (21.5 compared with 17.7), but there was a substantial difference in the pattern by age: White mothers under 25 years of age were more likely to have diabetes than comparable black mothers, but at ages 30 and over, the pattern was reversed, with black mothers having substantially higher rates than white mothers.

White mothers were nearly three times as likely to have had a previous infant weighing 4,000 grams or more. This is not unexpected because white babies are generally twice as likely as black babies to weigh 4,000 grams or more (12.2 percent compared with 5.2 percent in 1990) (4).

Overall rates for genital herpes were similar for white and black women, but there was a distinctive difference in the patterns by age. Rates for white women rose steadily with age, reaching a peak at ages 35–39, while rates for black women were highest for mothers under age 25, and declined steadily thereafter.

Many of the medical risk factors are associated with a sharply elevated risk of low birthweight, 15–29 percent. These include hydramnios, chronic and pregnancy-associated hypertension, eclampsia, incompetent cervix, previous SGA infant, and uterine bleeding. (Tabular data are not included in this report.) By contrast, diabetes is associated with higher-than-average birthweight. In 1990, 17 percent of babies born to diabetic mothers weighed 4,000 grams or more compared with 11 percent of all births. Mothers who have previously given birth to an infant weighing 4,000 grams or more are at

43 percent risk of another heavier-than-average baby.

The likelihood of a preterm birth (gestation of less than 37 completed weeks) was 20 percent or greater for mothers with hydramnios, eclampsia, incompetent cervix, previous SGA infant, and uterine bleeding compared with 11 percent for all births.

### Tobacco use during pregnancy

Cigarette smoking during pregnancy has long been associated with reduced infant birthweight (8,9), intra-uterine growth retardation, and preterm birth. Low birthweight in turn is one of the major predictors of infant mortality and infant and childhood morbidity. Sudden infant death syndrome (SIDS) in particular is highly associated with low birthweight (10–12). Additionally, maternal smoking during pregnancy has been shown in many studies to be associated with a sharply elevated risk of SIDS even after other risk factors such as low birthweight have been taken into account (10,11). Finally, past studies have estimated that the number of infant deaths could be reduced by 10 percent if pregnant women did not smoke (11,13). The mechanisms through which tobacco use adversely affects pregnancy outcome have been reviewed elsewhere (8,14).

The birth certificates of 45 States and the District of Columbia reported tobacco use during pregnancy in 1990. The information was not available for California, Indiana, New York, Oklahoma, and South Dakota. The mother's smoking status was not reported on 4 percent of the birth certificates in the reporting States (table 2).

Smoking during pregnancy was reported by 18.4 percent of women giving birth in 1990 compared with 19.5 percent in 1989. These levels are comparable to those reported in the 1988 National Maternal and Infant Health Survey (NMIHS) (15). As in 1989, white mothers in 1990 were more likely to smoke than were black mothers, 19.4 percent compared with 15.9 percent. The smoking rate was highest for mothers aged 18–19 years (22.5 percent) and lowest for teenage

mothers under 15 years (7.5 percent) and for mothers in their forties (12.3 percent).

The same variation in smoking by age was observed for white mothers, but for black mothers, smoking was most prevalent at ages 25–34 years, with rates of 21.1–22.5 percent compared with 9 percent or less for teenage mothers.

Among all mothers who smoked, a majority (59 percent) smoked no more than half a pack of cigarettes (10 or fewer) per day. One in five smoked five cigarettes or less daily. However, more than a third smoked 16 cigarettes or more per day. Younger mothers tended to smoke fewer cigarettes; of teenage mothers who smoked, two-thirds smoked half a pack or less per day. The average number of cigarettes smoked increased steadily with advancing maternal age.

White mothers were not only more likely than black mothers to smoke during pregnancy, but those who were smokers smoked much more. Thirty-seven percent of white women compared with 21 percent of black women smoked 16 cigarettes or more per day. Conversely, 33 percent of black mothers compared with 17 percent of white mothers smoked five cigarettes or fewer per day.

Several studies have indicated that Hispanic women are much less likely to smoke than non-Hispanic women (16–18). Birth registration data corroborate these findings (table 3). Overall, 7 percent of Hispanic mothers were reported to have smoked during pregnancy compared with 21 percent of white non-Hispanic and 16 percent of black non-Hispanic mothers. Mexican, Cuban, and Central and South American women were particularly unlikely to smoke, 3–6 percent compared with Puerto Rican mothers, 14 percent.

The highest smoking rates for Hispanic women overall were for mothers aged 18–34 years, 7 percent. There was very little variation by age in the percent of smokers for Mexican, Cuban, and Central and South American mothers. Among Puerto Rican mothers, the percent of smokers varied more, 7–14 percent. By contrast, the proportion of smokers among non-Hispanic

women varied substantially according to mother's age. Among white non-Hispanic mothers, the proportion ranged from 13 percent (mothers 35 and older) to 33 percent (mothers aged 18–19 years). Among black non-Hispanic mothers, the proportion ranged from 2 percent (teenagers under 15 years) to 23 percent (women aged 30–34).

Maternal smoking is relatively rare among Asian women. The proportions in 1990 were 2 percent for Chinese mothers, 4–5 percent for Filipino and other Asian and Pacific Islander mothers, and 8 percent for Japanese mothers. (Tabular data are not presented in this report.)

Among mothers giving birth in 1990, one-third with 9–11 years of education were reported to have smoked during pregnancy, seven times the rate reported for college graduates, 5 percent (table 4). Women with a grade school education or less (0–8 years) and women who were high school graduates were about equally likely to smoke, 19 and 21 percent, respectively. The relationship of maternal smoking and educational attainment is similar for white and black mothers. However, white mothers with 12 years or fewer of schooling were 47–80 percent more likely than their black counterparts to smoke. For women with 1 year or more of college, however, the proportions of smokers were similar for white and black mothers.

Among mothers who smoked, those who had completed the fewest years of formal education smoked the most. In 1990, 48 percent of mothers with a grade school education or less smoked at least half a pack of cigarettes per day compared with 29 percent of mothers who were college graduates. The relationship between the number of cigarettes smoked and educational attainment was similar for white and black mothers. In each educational attainment category, white mothers smoked more cigarettes than black mothers, but the racial disparity narrowed as educational attainment advanced.

Maternal smoking has a severe adverse impact on infant birthweight. Babies born to mothers who smoke are

at substantially elevated risk of low birthweight (11.3 percent) compared with babies born to nonsmokers (6.1 percent) (table 5). Although the risk of low birthweight tends to decline with advancing maternal age, the disparity in low birthweight by maternal smoking status actually increases with increasing maternal age. For example, among mothers 18–19 years, 11 percent of births to smokers compared with 9 percent of births to nonsmokers weighed less than 2,500 grams (5 lb 8 oz). Among mothers aged 25 years and older, however, the incidence of low birthweight was more than twice as high for births to smokers, 11–16 percent compared with 5–7 percent. The relationship of maternal smoking and low birthweight can be viewed in another way: Although mothers who smoke account for 18 percent of all births, they account for 28 percent of all low-birthweight births.

White and black infants alike were adversely affected if their mothers smoked during pregnancy. Among white mothers, 9.4 percent of smokers compared with 4.8 percent of nonsmokers gave birth to a low-birthweight infant. The proportions for births to black mothers were 21.2 percent for smokers and 11.7 percent for nonsmokers. The differential by smoking status was substantial for white and black mothers in all age groups and tended to increase as age of mother advanced. Regardless of age and smoking status, however, black babies were at considerably elevated risk of low birthweight compared with white babies.

Another aspect of maternal smoking that affects the levels of low birthweight is the number of cigarettes smoked daily during pregnancy (9). Although the differential in low birthweight is greatest when smokers as a group and nonsmokers are compared, heavier smoking tends to elevate the low-birthweight levels even further. In 1990 the incidence of low birthweight increased from 10 percent for births to mothers who smoked five cigarettes or fewer to 14 percent for births to mothers who smoked 1 1/2–2 packs daily. For white mothers with comparable smoking levels, the increase was

from 8 to 12 percent, and for black mothers, the increase was from 18 to 32 percent. Babies born to the heaviest smokers among white and black women alike were at two to three times the risk of low birthweight as were babies born to nonsmokers.

### Alcohol use during pregnancy

The use of alcohol during pregnancy is another risk factor for birth outcome. Numerous studies have indicated that heavy maternal drinking can lead to a series of adverse effects. The most notable of these is fetal alcohol syndrome, which is characterized by growth retardation, facial malformations, and dysfunctions of the central nervous system, including mental retardation and behavioral disorders (19). Additionally, infant birthweight can be compromised by alcohol use, regardless of whether the mother also smoked, or of other characteristics (20).

In 1990, 46 States and the District of Columbia reported alcohol use on the birth certificates. The States not providing this information were California, New York, Oklahoma, and South Dakota. The item on the birth certificate asked if the mother used alcohol during pregnancy and if so, the average number of drinks per week. Four percent of the birth certificates in the reporting areas did not report this information.

In 1990, 3.3 percent of the births were to mothers who reported alcohol use (table 6). Black mothers were slightly more likely than white mothers to have used alcohol, 3.7 percent compared with 3.2 percent. Only 1.6 percent of all Hispanic mothers reported alcohol use, with the proportion ranging from 0.9 percent for Cuban mothers to 2.9 percent for Puerto Rican mothers (table 7). These percents are all slightly lower than the figures reported in 1989 (3).

Alcohol use during pregnancy appears to be substantially underreported. Evidence from other studies based on personal interviews and written questionnaires suggests alcohol use of perhaps 20 percent or more during pregnancy (21,22). It may be that the birth certificate question,

focusing as it does on the number of drinks per week, tends to discourage reporting of alcohol use by women who have perhaps one or two drinks per month.

Alcohol use is directly associated with maternal age. The rate of use by mothers aged 30 years and older was twice that reported by teenage mothers. Although white teens were more likely than black teens to report alcohol use, the racial differential reversed at ages 20–39 years.

Black women were not only more likely than white women to report alcohol use, they reported a substantially larger number of drinks per week. For example, 40 percent of black women who drank during pregnancy compared with 17 percent of white women reported three drinks per week or more. Conversely, 68 percent of white women compared with 39 percent of black women reported one drink per week or less. This differential in number of drinks per week was observed in all age groups.

There is no clear pattern in alcohol use according to the mother's education. The range in the percents is very small (data not shown separately). Among women with 9–11 years of schooling, 4.0 percent reported alcohol use compared with 2.3 percent of those with a grammar school education or less. Some of this disparity by educational attainment may reflect the low rates of alcohol use by Hispanic women whose educational attainment is often more limited.

Although alcohol use is substantially underreported on the birth certificate, even the limited use that is reported is associated with a severe detrimental impact on infant birthweight. Additionally, the effect is aggravated by heavier drinking. The percent low birthweight was 11.4 percent for drinkers compared with 6.9 percent for nondrinkers. Among births to mothers who drank, the low-birthweight proportion nearly tripled as the number of drinks increased, from 8.1 percent of births to mothers having one drink or less to 23.3 percent of births to mothers having five drinks or more. This relationship was observed for mothers in all age and racial groups. However, the

impact of alcohol use on low-birthweight rates was particularly severe for black babies. For example, nearly one-third of births to black women in their thirties who used alcohol were of low birthweight compared with 13–14 percent of nondrinkers of the same age. (Tabular data are not shown in this report.) The proportions of low birthweight for babies born to white women in their thirties were 7–8 percent for drinkers and 5–6 percent for nondrinkers.

### Maternal weight gain

There is a large body of evidence indicating that weight gain during pregnancy is an important determinant of both fetal growth and birthweight (23). From 1974 to 1989, the medical community recommended a weight gain of 22–27 pounds for a full-term pregnancy (24,25). In 1990 the National Academy of Sciences recommended that weight gain be geared to the mother's weight and height, and that for an optimum pregnancy outcome, an average size mother should gain 25–35 pounds during a normal pregnancy (23).

An item on weight gain during pregnancy was included on the 1989 U.S. Standard Certificate of Live Birth. In 1990, 48 States and the District of Columbia reported this information; California and Oklahoma birth certificates lacked the item. Information on weight gain was not reported for 13 percent of the birth certificates in the reporting area. Before 1989 national information on maternal weight gain was available from the 1980 National Natality Survey and the 1988 National Maternal and Infant Health Survey, conducted by the National Center for Health Statistics (NCHS). Information from these surveys indicated that there are large disparities in maternal weight gain by the mother's age, marital status, and educational attainment. Teenage mothers, mothers in the oldest years of childbearing, unmarried mothers, and mothers with less than a high school education were most likely to have an inadequate weight gain; and black mothers gained far less than white mothers, even when differences in ges-

tational age and socioeconomic status were considered (26,27). Information from live birth certificates on weight gain confirms these findings. (Data on weight gain by age, marital status, and educational attainment are shown elsewhere (28).) Additionally, in 1988, a significantly higher proportion of black than white mothers reported advice that did not meet the then current standard for maternal weight gain (29).

Data from birth certificates indicate that weight gain was virtually the same for mothers giving birth in 1990 as in 1989. In 1990 the median weight gain was 30.4 pounds; in 1989 it was 30.3 pounds. In 1990, one of five mothers (20 percent) gained less than 21 pounds and 28 percent gained at least 36 pounds. As would be expected, as gestational period lengthens, median weight gain increases, and the likelihood of a weight gain of less than 21 pounds lessens (table 8).

Black mothers have a lower median weight gain than white mothers (28.1 pounds compared with 30.6 pounds) and are far more likely to gain less than 21 pounds (30 percent compared with 18 percent). This racial disparity is seen for all periods of gestation. For example, for gestations of 40 weeks and over, the median weight gain for black mothers was 30.2 pounds, about one-half pound less than that of white mothers (30.9 pounds), and 26 percent of black mothers compared with 16 percent of white mothers gained less than 21 pounds. In addition, the lower overall weight gain of black mothers reflects the fact that they are more likely to deliver prematurely (before 37 completed weeks of gestation). In 1990, 18.8 percent of black births were premature, more than double the proportion of white births born prematurely (8.9 percent) (4).

Low birthweight (less than 2,500 grams or 5 lbs 8 oz) is associated with a greatly elevated risk of infant morbidity and mortality. Regardless of period of gestation, low birthweight declines substantially as weight gain increases (table 9). For all gestational ages combined low birthweight declined from 15.8 percent for weight gains of less than 16 pounds to 4.0–4.2 percent for gains of 31 pounds or more. For

premature births the comparable decline in low birthweight with added weight gain was from 58.0 percent to approximately 31 percent; for gestations of 40 weeks or longer the decline in low birthweight was from 3.5 percent to 1 percent.

The risk of a low-birthweight outcome was consistently higher for black than for white births regardless of maternal weight gain, and this racial disparity increased as gestational period lengthened (table 9). However, the decline in low birthweight with added weight gain was still notable for black as well as for white births. For example, for gestational ages of 40 completed weeks and over the risk of low birthweight for black births declined from 6.2 percent for gains of less than 16 pounds to about 2 percent for gains of 31 pounds or more. The comparable decline in low birthweight for white births was from 2.7 percent to about 1 percent.

The weight gain of mothers of Hispanic origin was reported by 47 States and the District of Columbia in 1990. New Hampshire did not require the reporting of Hispanic origin, and as indicated earlier, California and Oklahoma did not require the reporting of maternal weight gain.

As noted for white and black births, increases in maternal weight gain for Hispanic mothers are associated with very substantial declines in the risk of a low-birthweight outcome (table 10). For all Hispanic origins combined the overall decline in low birthweight was from 12.0 percent for weight gains of less than 16 pounds to approximately 4 percent for gains of at least 31 pounds.

Although a sharp decline in low birthweight with added weight gain is evident for all Hispanic groups, for weight gains of less than 31 pounds, Mexican and Central and South American mothers are generally less likely to give birth to a low-birthweight infant than Puerto Rican, Cuban, or other Hispanic mothers. This probably reflects differences in tobacco use and in prepregnancy weight, both important determinants of infant birthweight. A smaller proportion of Mexican and Central and South Amer-

ican mothers reported smoking during pregnancy (table 3), and Mexican women in the childbearing ages are disproportionately overweight (30).

### Obstetric procedures

The U.S. Standard Certificate of Live Birth includes six checkboxes for obstetric procedures. Data for 1990 were reported by 49 States and the District of Columbia, an increase of 2 States from the previous year. Data were not available for Oklahoma. Information was not reported for 2–3 percent of the births in the reporting area. The rates for these procedures can be examined by maternal and infant characteristics and measurements of birth outcome.

The most prevalent procedure reported in 1990 was electronic fetal monitoring (EFM), done for 73 percent of all live births (table 11) compared with 68 percent in 1989. At least 70 percent of mothers in all age groups received this procedure, with the highest level (74 percent) for the youngest age group (less than 20 years of age). All age groups experienced increases in EFM compared with 1989, ranging from 5 percent for mothers less than 20 years of age to 9 percent for those 40–49 years of age. This pattern of increases in EFM was observed for both white and black mothers, although the increases for black mothers were less pronounced.

Of the mothers who had live births in 1990, 52 percent received ultrasound compared with 48 percent in 1989. Increases from 1989 by age ranged from 6 to 10 percent. For mothers in all age groups, at least 50 percent had ultrasound, with mothers 35–39 years of age having the highest level (54 percent). The variation in the receipt of ultrasound by age for white mothers was small (52–55 percent). For black mothers the levels were slightly lower than for white mothers and also showed a small range by age (47–51 percent).

In 1990 the overall rates of stimulation of labor and induction of labor were 114 and 95 per 1,000 live births, respectively. Mothers 25–29 years of age had the highest rate of stimulation of labor (117 per thousand) and

mothers under 20 years had the lowest rate (110 per thousand). As observed for all races, both black and white mothers 25–29 years of age had the highest rates (103 and 120, respectively). Induction of labor rates had a slightly larger range by age, from 82 for the youngest mothers to 105 for the oldest mothers. This same pattern is seen for both black and white mothers. The rates of both of these procedures increased from 1989 for all but one age group, 40–49 years of age.

Amniocentesis, a procedure performed between the 15th and 16th week of gestation to detect genetic disorders, was reported for 33 of every 1,000 live births in 1990, an increase of 3 percent over 1989. The rate of amniocentesis for the oldest age group (40–49 years of age) was 14 times the rate for the youngest mothers (194 compared with 14 per 1,000 live births). Similar differences by age were observed for white mothers. For black mothers the difference between the oldest and youngest age groups was tenfold (108 compared with 11 per 1,000 live births). White mothers were nearly twice as likely as black mothers to have had amniocentesis (36 compared with 19 per 1,000 live births). The difference between the rates for white and black mothers was smallest for mothers 25–29 years of age (20 compared to 16 per 1,000 live births) and largest for those 40–49 years of age (209 compared to 108 per 1,000 live births).

Tocolysis was the least prevalent of these procedures and showed no change from the previous year (16 per 1,000 live births). Black mothers were more likely than white mothers to have received tocolysis (19 compared with 16 per 1,000 live births). This represents an increase in the difference between white and black mothers over 1989, caused by an increase in the rate for black mothers and a decline for white mothers. By age, the highest rates in 1990 were for black and white mothers under 20 years of age (20 and 19 per 1,000 live births).

Rates for these procedures vary by the education of mother and birthweight and gestation of the infant (data not shown here). All but one of these procedures, tocolysis, had higher rates

for mothers with 13 years of education or more compared with mothers who had less schooling. The same pattern is observed for black and white mothers except for ultrasound. For this procedure, white mothers with 13 years of education or more had a slightly lower rate than mothers with 12 years of education. Mothers giving birth to low-birthweight infants (less than 2,500 grams) or preterm infants (less than 37 completed weeks of gestation) were much more likely to have had amniocentesis or tocolysis. However, these mothers were less likely to have had labor induced or stimulated.

### Complications of labor and/or delivery

In 1990, 49 States and the District of Columbia collected data on various specified complications of labor and/or delivery. Data are not obtainable from Oklahoma. Less than 3 percent of the birth certificates from the reporting area failed to provide information on complications.

Six complications were reported at a rate greater than or equal to 30 per 1,000 live births: Meconium, moderate/heavy (60 per 1,000), fetal distress (43 per 1,000), breech/malpresentation (38 per 1,000), cephalopelvic disproportion (37 per 1,000), premature rupture of membrane (33 per 1,000), and dysfunctional labor (30 per 1,000). The least common complications were anesthetic complication and seizures during labor, which occurred less than once per 1,000 live births (table 12).

Febrile and cord prolapse were the only complications with higher rates in 1990 than in 1989. There were no changes in the rates for placenta previa, dysfunctional labor, and anesthetic complications. The remaining 10 complications had lower rates in 1990. For white mothers the increases and decreases were the same as for all races. For black mothers 14 complications had lower rates in 1990; only cord prolapse was higher than in 1989.

Distinctions by age of mother were observed in the rates of three of the six most prevalent complications. Meconium and fetal distress had the highest rates for the youngest (under 20 years

of age) and oldest (40–49 years of age) mothers and the lowest rates for mothers in the middle years (25–34 years of age). Breech/malpresentation had the highest rates for the oldest mothers and the lowest rates for the youngest mothers. Although not a frequent complication, placenta previa had the greatest contrast between older and younger mothers (10 and 1 per 1,000 live births, respectively).

Of the six most prevalent complications, four occurred more often to mothers with 13 years of education or more and two, meconium and fetal distress, occurred most often to mothers with less than 12 years of education (data not shown here). The same pattern is observed for white mothers. For black mothers there was no trend by educational attainment for premature rupture of membrane and, in direct contrast to white mothers, the highest rates for fetal distress occurred to mothers with the most education.

Only four complications (meconium, prolonged labor, dysfunctional labor, and cephalopelvic disproportion) had lower rates for low-birthweight infants (less than 2,500 grams) as compared with infants weighing 2,500 grams or more. Of the remaining 11 complications, which had higher complication rates for low-birthweight infants, 4 (premature rupture of membrane, abruptio placenta, placenta previa, and breech/malpresentation) had rates at least four times those of infants weighing 2,500 grams or more. These same four complications with considerable differences by birthweight also had large differences (three to seven times) in rates for those born preterm (less than 37 completed weeks of gestation) when compared with term births.

### Method of delivery

An item on method of delivery was included in the 1989 revised U.S. Standard Certificate of Live Birth to expand information available from periodic surveys. Since 1965, national and regional trends in cesarean delivery have been available from the National Hospital Discharge Survey (NHDS), conducted annually by NCHS. From this source,

it was determined that the rate of cesarean delivery (number of cesarean deliveries per 100 total deliveries) increased steadily from 1965 to 1986 (from 4.5 to 24.1 percent) and then reached a plateau at about the 1986 level (31,32). However, no data for States or smaller geographic areas and only limited information on maternal characteristics are available from this survey. Additionally, because maternal and infant records are sampled independently, cesarean rates for infant characteristics cannot be determined.

In 1990, 49 States and the District of Columbia included an item on method of delivery on their birth certificates. The item was not included on the birth certificate of Oklahoma. Only 2.1 percent of the births in the reporting area lacked information on method of delivery. The overall cesarean rate derived from live birth certificates (percent of all live births by cesarean delivery) in 1990 was 22.7 (table 13), almost identical to the 1989 rate of 22.8. The primary rate for 1990 (first cesareans per 100 live births to women who had no previous cesarean) derived from live birth certificates was 16.0, also almost identical to the 1989 rate of 16.1. The national objectives for health promotion and disease prevention for the year 2000 that pertain to cesarean delivery are to reduce the overall cesarean delivery rate to no more than 15 and the primary rate to no more than 12 (33). A recent study indicates that the U.S. cesarean rate is the third highest among 21 reporting countries, exceeded only by Brazil and Puerto Rico (34).

The rate of vaginal birth after a previous cesarean delivery (VBAC) has risen steadily in the last few decades. However, the U.S. rate is still much lower than rates in many European countries (34). In 1990, of women who had a previous cesarean, 19.9 percent delivered vaginally. The comparable rate from the 1990 NHDS was 20.4 percent (32). In 1982 (35), 1985 (36), and 1988 (37) the American College of Obstetricians and Gynecologists issued increasingly liberalized guidelines for VBAC to reduce the overall cesarean rate. The year 2000 objective is to

increase the national VBAC rate to 35 percent (33).

The overall cesarean rate rises rapidly with advancing age and is twice as high for women in their forties as for teenage mothers (32.3 compared with 16.6) (table 13). The primary rate also increases with age, from 14.7 for teenagers to 23.5 for women in their forties. These increases are partly explained by the higher educational attainment of older mothers; cesarean rates are higher for mothers with 12 years or more of schooling than for mothers with lower educational attainment. For example, for mothers 30–39 years of age with 12 years or more of schooling, the cesarean rates were 26 to 30 compared with 22 to 25 for mothers with less than 12 years of education (table not shown).

The rate of vaginal birth after a previous cesarean delivery declines with added age. Of the teenagers who had a previous cesarean delivery, one in four delivered vaginally in 1990 compared with one in five mothers in their twenties and early thirties and less than one in six mothers aged 40–49 (table 13).

The overall cesarean rate for white women was less than 1 percentage point higher than for black women (23.0 compared with 22.1 percent). However, for mothers 25 years and older, black women were more likely to have a cesarean delivery than white women. Similarly, although the primary cesarean rate for white mothers was slightly higher than for black mothers (16.1 compared with 15.7), the rate for black women was substantially higher for ages 30 years and older. The overall VBAC rates were also similar for white and black women (19.7 compared with 20.3), but white women aged 30 years and older were more likely to have a VBAC delivery (table 13).

The risk of a cesarean delivery was substantially higher than average in the presence of certain medical risk factors related to pregnancy (table 14). The cesarean rate was more than 40 for the following indications: eclampsia (52.3), genital herpes (46.0), hydramnios/oligohydramnios (45.6), and chronic hypertension (41.4). Likewise, there was a greatly elevated risk of a cesarean delivery (rate of 40 or more)

for 10 of the 14 complications of labor or delivery identified on the birth certificate. The rate was particularly high for cephalopelvic disproportion (97.7), breech/malpresentation (84.5), placenta previa (82.3), dysfunctional labor (65.2), and fetal distress (62.6). Medical risks and complications with higher than average overall cesarean rates were also associated with elevated primary rates and reduced rates of VBAC (table 14).

Tocolysis and ultrasound performed during pregnancy were associated with higher than average cesarean rates (31.1 and 26.3, respectively), although cesarean rates for induction of labor (21.9) and electronic fetal monitoring (21.7) were slightly lower than the average rate of 22.7 (table 14).

For a number of years, there has been a growing deficit in the number of births on weekends and holidays, regardless of mode of delivery. This has been attributed to the rise in cesarean deliveries, particularly repeat cesareans, which are often scheduled, and to an increase in the induction of labor for vaginal births. The index of occurrence can be used to measure the magnitude of the weekend deficit. It relates the average number of births on a given day of the week to the average daily number of births for the year. The index for all births occurring on Sunday is 78.9, meaning that there are 21 percent fewer births on Sunday than the daily average (table 15). Similarly, the index for Saturday is 86.1, or 14 percent fewer births than the daily average.

The weekend deficits for births by cesarean delivery, particularly repeat cesareans, are especially large. There were 30 percent fewer primary and 61 percent fewer repeat cesareans on Sundays than the daily averages, and 18 percent fewer primary and 55 percent fewer repeat cesareans on Saturdays than the daily averages.

For vaginal births, the indexes for Sunday and Saturday were 84.9 and 91.4, respectively. The weekend deficit of vaginal births reflects the less frequent induction of labor on these days. In 1990, 9.6 percent of all vaginal births were induced, but only 4.8 percent of those occurring on Sundays and 7.5 per-

cent of those occurring on Saturdays were induced.

Information from the NHDS shows that concomitant with the rise in cesarean deliveries during the early and mid-1980's, there was a large decline in forceps deliveries and an increase in vacuum extraction deliveries (38). Information on the rates of forceps and vacuum extraction deliveries determined from 1989 and 1990 live birth certificates indicates that these diverse trends have continued, but that both of these methods of delivery are used relatively infrequently. In 1990, 5.1 percent of births were delivered by forceps (compared with 5.5 percent in 1989) and 3.9 percent were by vacuum extraction (compared with 3.5 percent in 1989). In 1990 both of these procedures were more frequently performed for white than for black births (5.5 percent compared with 3.4 percent for forceps, and 4.2 percent compared with 2.3 percent for vacuum deliveries) (table not shown).

### Abnormal conditions of the newborn

There were eight abnormal conditions of the newborn listed on the U.S. Standard Certificate of Live Birth in 1990. Data on these conditions were collected by 49 States and the District of Columbia. Data were not available for Oklahoma. The percent of birth certificates from the reporting area that failed to provide any information on abnormal conditions was between 3 and 4 percent.

The abnormal conditions with the highest rates per 1,000 live births were assisted ventilation less than 30 minutes (13 per 1,000), assisted ventilation 30 minutes or longer (7 per 1,000), and hyaline membrane disease/respiratory distress syndrome (RDS) (6 per 1,000).

Data from 1989 suggested substantial underreporting on the birth certificate for birth injuries and fetal alcohol syndrome. This situation did not change in 1990. The identification of fetal alcohol syndrome can often occur after the birth certificate has been completed. Some physicians that suspect

fetal alcohol syndrome do not make the diagnosis (39).

The rates for abnormal conditions in 1990, as in 1989, were higher for black births than for white births for all conditions except assisted ventilation less than 30 minutes and birth injuries. The highest rates by age for anemia and hyaline membrane disease/RDS were observed for the youngest mothers (under 20 years of age). Assisted ventilation 30 minutes or longer, meconium aspiration, and assisted ventilation less than 30 minutes had the highest rates for both the oldest (40-49 years of age) and youngest (under 20 years of age) mothers (table 16).

All but one abnormal condition, birth injury, was more frequent among low-birthweight infants (less than 2,500 grams) compared with infants weighing 2,500 grams or more. There were very large differences between low-birthweight infants and those of higher weight in the rates of hyaline membrane disease/RDS (56 and 2 per 1,000 live births, respectively) and assisted ventilation 30 minutes or longer (62 and 3 per 1,000 live births, respectively). Although less pronounced, the rates of the same two conditions that had the largest differences by birthweight also had the largest differences between preterm births (less than 37 completed weeks gestation) and term births (37 completed weeks gestation or more) (data not shown here).

### Congenital anomalies

Congenital anomalies are responsible for a substantial number of fetal and infant deaths. They are also important contributors to childhood morbidity and to shortened life expectancy (40).

Because of the importance of national, uniformly collected data on congenital defects, the 1989 revised U.S. Standard Certificate of Live Birth included a checkbox item for reporting congenital anomalies of the newborn. In 1990, 47 States and the District of Columbia reported this item; information was not available for births in New Mexico, New York, and Oklahoma. The item was not completed for 4 per-

cent of the birth certificates in the reporting area.

Year-to-year changes in the occurrence of specific congenital anomalies should be interpreted with caution. Variations in malformation incidence can be caused by differences in reporting practices and to random fluctuations due to small numbers of events, as well as to actual changes in the frequency of occurrence.

For many of the anomalies, rates are lower for black than for white births (table 17). Polydactyly/Syndactyly/Adactyly is a notable exception. In 1990, the rate for this group of anomalies was 223.8 for black babies, 3 1/2 times the rate for white births (64.7).

As shown in table 17, the risk of the occurrence of an anomaly is often strongly associated with a mother's age. There was a decline in risk for mothers 30 years and older compared with teenage mothers and mothers in their early twenties for anencephalus, hydrocephalus, "other central nervous system anomalies," omphalocele, "other gastrointestinal anomalies," and clubfoot. However, the risk of Down's syndrome and other chromosomal anomalies rose rapidly with increased maternal age. For mothers 40 years and older, the rate was 421.2 for Down's syndrome, 11 times as high as the rate for mothers under 20 years of age (36.7); for other chromosomal anomalies, the rate was 127.1 for older mothers, 3 times the rate of 37.8 for teenage mothers.

The incidence of some anomalies also differed markedly by the sex of the child (data not shown in this report). The rate for urogenital anomalies was far higher for male than for female babies: for malformed genitalia the rate was 141.8 for male births compared with 16.8 for female births; for renal agenesis, 12.2 for male births compared with 5.8 for female births; and for other urogenital anomalies, 222.4 for male births and 38.4 for female births. Urogenital anomalies accounted for 1 of 4 anomalies for male births, but for only 1 of 10 anomalies for female births.

Weight at birth is also highly associated with the occurrence of congenital malformations (detailed data not shown). For all anomalies included in

this report, rates were far higher for babies of low birthweight (under 2,500 grams or 5 lb 8 oz) than for babies with more adequate birthweight, and were particularly high for infants with very low birthweights (less than 1,500 grams or 3 lb 4 oz). Rates of anencephalus, microcephalus, rectal atresia/stenosis, tracheo-esophageal fistula/esophageal atresia, omphalocele/gastroschisis, and renal agenesis were 8 to 29 times as high for babies of low birthweight than for babies weighing 3,500 grams or more (7 lb 12 oz).

Babies born prematurely (before 37 completed weeks of gestation) are very likely to have a low or very low birthweight. There is a greatly elevated risk for all the congenital anomalies included in this report for babies born prematurely, consistent with their reduced birthweight.

## References

1. Taffel SM, Ventura SJ, Gay GA. Revised U.S. certificate of birth: New opportunities for research on birth outcome. *Birth* 16(4):188-93. 1989.
2. Ventura SJ. New insights in maternal and infant health from the 1989 birth certificate. Paper presented at the annual meeting of the Population Association of America, May 2, Denver, 1992.
3. National Center for Health Statistics. Advance report of new data from the 1989 birth certificate. *Monthly vital statistics report; vol 40 no 12, suppl.* Hyattsville, Maryland: Public Health Service. 1992.
4. National Center for Health Statistics. Advance report of final natality statistics, 1990. *Monthly vital statistics report; vol 41 no 9, suppl.* Hyattsville, Maryland: Public Health Service. 1993.
5. Becerra JE, Khoury MJ, Cordero JF, Erickson JD. Diabetes mellitus during pregnancy and the risks for specific birth defects: A population-based case-control study. *Pediatrics* 85(1):1-9. 1990.
6. National Center for Health Statistics. Advance report of final mortality statistics, 1990. *Monthly vital statistics report; vol 41 no 7, suppl.* Hyattsville, Maryland: Public Health Service. 1993.
7. Centers for Disease Control and Prevention. Prenatal care and pregnancies complicated by diabetes, reporting areas, 1989. *MMWR* 42:119-22. 1993.
8. Centers for Disease Control. Office on Smoking and Health. Reducing the health consequences of smoking: 25 years of progress. A report of the Surgeon General. Washington: U.S. Department of Health and Human Services. 1989.
9. Kleinman JC, Madans JH. The effects of maternal smoking, physical stature, and educational attainment on the incidence of low birth weight. *Am J Epidemiol* 121(6):843-55. 1985.
10. Li D, Daling J. Maternal smoking, low birth weight, and ethnicity in relation to sudden infant death syndrome. *Am J Epidemiol* 134(9):958-64. 1991.
11. Malloy MH, Kleinman JC, Land, GH, Schramm WF. The association of maternal smoking with age and cause of infant death. *Am J Epidemiol* 128(1):46-55. 1988.
12. Schoendorf KC and Kiely JL. Relationship of sudden infant death syndrome to maternal smoking during and after pregnancy. *Pediatrics* 90(6):905-8. 1992.
13. Kleinman JC, Pierre MB, Madans JH, et al. The effects of maternal smoking on fetal and infant mortality. *Am J Epidemiol* 127(2):274-82. 1988.
14. Floyd RL, Zahniser SC, Gunter EP, Kendrick JS. Smoking during pregnancy: Prevalence, effects, and intervention strategies. *Birth* 18(1):48-53. 1991.
15. National Center for Health Statistics. Unpublished data from 1988 National Maternal and Infant Health Survey. 1991.
16. Fichtner RR, Sullivan KM, Zyrkowski CL, Trowbridge FL. Racial/ethnic differences in smoking, other risk factors, and low birthweight among low-income pregnant women, 1978-88. In: Centers for Disease Control Surveillance Summaries, *MMWR*; 39(No.SS-3):13-21. Atlanta, Georgia: CDC. 1990.
17. Schoenborn C. Health promotion and disease prevention, United States, 1985. National Center for Health Statistics. *Vital Health Stat* 10(163). 1988.
18. Felice ME, Shragg MA, James M, Hollingsworth DR. Clinical observations of Mexican-American, caucasian, and black pregnant teenagers. *J Adolesc Health Care* 7(5):305-10. 1986.
19. National Institute on Alcohol Abuse and Alcoholism. Alcohol and Health. Seventh special report to the U.S. Congress from the Secretary of Health and Human Services. Rockville, Maryland: U.S. Department of Health and Human Services. 1990.
20. Graves C, Malin H, Placek P, et al. The effect of maternal alcohol and cigarette

- use on infant birthweight. *Alcohol Health and Research World* 8(1):39-40. 1983
21. Pamuk ER, Mosher WD. Health aspects of pregnancy and childbirth, United States, 1982. National Center for Health Statistics. *Vital Health Stat* 23(16). 1988.
  22. Serdula M, Williamson DF, Kendrick JS, et al. Trends in alcohol consumption by pregnant women, 1985-88. *JAMA* 265(7):876-79. 1991.
  23. Institute of Medicine. Subcommittee on Nutritional Status and Weight Gain During Pregnancy. Nutrition during pregnancy. National Academy of Sciences. Washington: National Academy Press. 1990.
  24. American College of Obstetricians and Gynecologists: Standards for Obstetric-Gynecologic Services. 4th ed. Chicago: ACOG. 1974.
  25. American College of Obstetricians and Gynecologists: Standards for Obstetric-Gynecologic Services. 7th ed. Washington, D.C.: ACOG. 1989.
  26. Taffel SM. Maternal weight gain and the outcome of pregnancy, United States, 1980. National Center for Health Statistics. *Vital Health Stat* 21(44). 1986.
  27. National Center for Health Statistics. 1988 National Maternal and Infant Health Survey. Unpublished tabulation.
  28. National Center for Health Statistics. *Vital Statistics of the United States*, 1990, vol I, natality (in preparation).
  29. Taffel SM, Keppel KG, Jones GK. Medical advice on maternal weight gain and actual weight gain: Results from the 1988 National Maternal and Infant Health Survey. In: Keen CL, Bendich A, Willhite CC, eds. Proceedings of the Conference on Maternal Nutrition and Pregnancy Outcome. Annals of the New York Academy of Sciences. 1993.
  30. Najjar MF, Kuczmarski RJ. 1989. Anthropometric data and prevalence of overweight for Hispanics: 1982-84. National Center for Health Statistics. *Vital Health Stat* 11(239). 1989
  31. Taffel SM, Placek PJ, Moien MS, Kosary CL. 1989 U.S. cesarean section rate steadies: VBAC rate rises to nearly one in five. *Birth* 18(2):73-77. 1991.
  32. Taffel SM, Placek PJ, Kosary CL. U.S. cesarean section rates 1990: An update. *Birth* 19(1):21-2. 1992.
  33. U.S. Department of Health and Human Services. Healthy People 2000. National health promotion and disease prevention objectives. Washington: Public Health Service. 1990.
  34. Notzon FC. International differences in the use of obstetric interventions. *JAMA* 263(24):3286-91. 1990.
  35. American College of Obstetricians and Gynecologists. Guidelines for vaginal delivery after a cesarean childbirth. Committee on Obstetrics: Maternal and Fetal Medicine. Washington, DC. 1982.
  36. American College of Obstetricians and Gynecologists. New guidelines to reduce repeat cesareans. Statement by Dr. Luella Klein for VBAC news conference. Washington, DC. 1985.
  37. American College of Obstetricians and Gynecologists Committee on Obstetrics. ACOG Committee Opinion No.64. Guidelines for vaginal delivery after a previous cesarean birth. Washington, DC. 1988.
  38. Kozak LJ. Surgical and nonsurgical procedures associated with hospital delivery in the United States: 1980-87. *Birth* 16(4):209-13. 1989.
  39. Morse BA, Idelson RK, Sachs WH, Weiner L, Kaplan LC. Pediatricians' perspectives on fetal alcohol syndrome. *Journal of Substance Abuse* 4(2):187-195. 1992.
  40. Powell-Griner E, Woolbright A. Trends in infant deaths from congenital anomalies: Results from England and Wales, Scotland, Sweden and the United States. *Int J Epidemiol* 19(2):391-398. 1990.
  41. Brockert JE, Stockbauer JW, Senner JW, et al. Recommended standard medical definitions for the U.S. Standard Certificate of Live Birth, 1989 revision. Paper presented at the annual meeting of the Association for Vital Records and Health Statistics, June 25-27, Travers City, Michigan. 1990.

List of tables

1. Live births with selected medical risk factors and rates for selected medical risk factors by age and race of mother: Total of 49 reporting States and the District of Columbia, 1990 . . . . .	12	6. Number of live births by drinking status of mother, percent drinkers, and percent distribution of average number of drinks per week, according to age and race of mother: Total of 46 reporting States and the District of Columbia, 1990 . . . . .	18	States and the District of Columbia, 1990 . . . . .	21
2. Number of live births by smoking status of mother, percent smokers, and percent distribution by average number of cigarettes smoked by mothers per day, according to age and race of mother: Total of 45 reporting States and the District of Columbia, 1990 . . . . .	13	7. Number of live births by drinking status of mother and percent drinkers, by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 45 reporting States and the District of Columbia, 1990 . . . . .	19	12. Live births with selected complications of labor and/or delivery and rates for selected complications by age and race of mother: Total of 49 reporting States and the District of Columbia, 1990 . . . . .	22
3. Number of live births by smoking status and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 44 reporting States and the District of Columbia, 1990 . . . . .	14	8. Number of live births and percent distribution by weight gain during pregnancy and median weight gain, according to period of gestation and race of mother: Total of 48 reporting States and the District of Columbia, 1990 . . . . .	19	13. Live births by method of delivery, and rates of cesarean delivery and vaginal birth after previous cesarean delivery, by age and race of mother: Total of 49 reporting States and the District of Columbia, 1990 . . . . .	23
4. Number of live births, percent of mothers who smoked cigarettes during pregnancy and percent distribution of average number of cigarettes smoked by mothers per day, according to educational attainment and race of mother: Total of 44 reporting States and the District of Columbia, 1990 . . . . .	16	9. Percent low birthweight by weight gain during pregnancy, by period of gestation, and race of mother: Total of 48 reporting States and the District of Columbia, 1990 . . . . .	20	14. Rates of cesarean delivery and vaginal birth after previous cesarean delivery, by selected medical risk factors, complications of labor and/or delivery, and obstetric procedures: Total of 49 reporting States and the District of Columbia, 1990 . . . . .	24
5. Percent low birthweight by smoking status, age, and race of mother: Total of 45 reporting States and the District of Columbia, 1990 . . . . .	17	10. Percent low birthweight by weight gain during pregnancy and Hispanic origin of mother, and by race of mother for mothers of non-Hispanic origin: Total of 47 reporting States and the District of Columbia, 1990 . . . . .	20	15. Live births by day of week and index of occurrence by method of delivery, day of week, and race of mother: Total of 49 reporting States and the District of Columbia, 1990 . . . . .	25
		11. Live births with selected obstetric procedures and rates for selected obstetric procedures, by age and race of mother: Total of 49 reporting		16. Live births with selected abnormal conditions of the newborn and rates for selected abnormal conditions of the newborn, by age and race of mother: Total of 49 reporting States and the District of Columbia, 1990 . . . . .	26
				17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1990 . . . . .	27

**Table 1. Live births with selected medical risk factors and rates for selected medical risk factors, by age and race of mother: Total of 49 reporting States and the District of Columbia, 1990**

[Rates are number of live births with specified medical risk factor per 1,000 live births in specified group]

Medical risk factor and race of mother	All births <sup>1</sup>	Medical risk factor reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
All races <sup>2</sup>				Rate						Number
Anemia . . . . .	4,110,563	72,563	18.2	27.7	21.8	15.5	13.6	14.5	15.8	130,863
Cardiac disease . . . . .	4,110,563	13,457	3.4	2.3	2.6	3.4	4.2	5.0	6.0	130,863
Acute or chronic lung disease . . . . .	4,110,563	12,102	3.0	3.5	2.9	2.8	3.1	3.6	4.0	130,863
Diabetes . . . . .	4,110,563	84,615	21.3	7.4	13.7	20.9	29.4	43.0	61.9	130,863
Genital herpes <sup>3,4</sup> . . . . .	3,631,762	27,539	7.8	5.5	6.6	7.7	9.5	10.8	8.4	89,720
Hydramnios/Oligohydramnios <sup>3</sup> . . . . .	3,948,185	22,633	5.9	6.1	5.7	5.5	6.1	7.0	9.4	124,844
Hemoglobinopathy <sup>3</sup> . . . . .	3,948,185	1,584	0.4	0.5	0.5	0.4	0.4	0.4	*	124,844
Hypertension, chronic . . . . .	4,110,563	25,961	6.5	2.6	4.2	5.8	8.6	15.1	26.2	130,863
Hypertension, pregnancy-associated . . . . .	4,110,563	108,351	27.2	32.1	27.5	25.3	25.2	30.1	37.1	130,863
Eclampsia . . . . .	4,110,563	15,797	4.0	6.4	4.1	3.2	3.3	4.0	5.6	130,863
Incompetent cervix <sup>3</sup> . . . . .	3,948,185	13,083	3.4	2.2	2.8	3.4	4.4	5.1	5.7	124,844
Previous infant 4000+ grams <sup>3</sup> . . . . .	3,948,185	40,014	10.5	1.7	6.6	11.2	15.8	19.1	22.6	124,844
Previous preterm or small-for-gestational-age infant <sup>3</sup> . . . . .	3,948,185	45,810	12.0	5.9	11.6	12.1	13.9	16.6	18.9	124,844
Renal disease . . . . .	4,110,563	8,790	2.2	3.1	2.5	2.0	1.8	1.8	1.7	130,863
Rh sensitization <sup>5</sup> . . . . .	4,071,543	24,044	6.1	4.7	5.7	6.4	6.6	6.8	7.2	131,786
Uterine bleeding <sup>4</sup> . . . . .	3,794,140	30,645	8.3	6.2	7.3	8.3	9.8	10.5	11.2	95,752
White										
Anemia . . . . .	3,252,473	46,132	14.6	21.8	17.2	12.7	11.8	12.5	13.7	101,039
Cardiac disease . . . . .	3,252,473	11,029	3.5	2.3	2.6	3.5	4.3	5.1	6.1	101,039
Acute or chronic lung disease . . . . .	3,252,473	9,024	2.9	3.1	2.7	2.6	3.0	3.5	4.0	101,039
Diabetes . . . . .	3,252,473	67,890	21.5	8.3	14.3	20.7	28.5	40.8	59.0	101,039
Genital herpes <sup>3,4</sup> . . . . .	2,843,857	22,286	8.0	4.4	6.1	8.0	10.4	12.2	9.4	67,239
Hydramnios/Oligohydramnios <sup>3</sup> . . . . .	3,110,009	17,262	5.7	6.1	5.5	5.3	5.8	6.8	8.8	96,143
Hemoglobinopathy <sup>3</sup> . . . . .	3,110,009	640	0.2	0.2	0.2	0.2	0.2	0.2	*	96,143
Hypertension, chronic . . . . .	3,252,473	18,057	5.7	2.3	3.8	5.1	7.3	12.2	21.5	101,039
Hypertension, pregnancy-associated . . . . .	3,252,473	87,016	27.6	33.1	28.7	25.9	25.0	29.6	36.1	101,039
Eclampsia . . . . .	3,252,473	11,384	3.6	5.6	3.9	3.0	3.1	3.7	5.0	101,039
Incompetent cervix <sup>3</sup> . . . . .	3,110,009	10,586	3.5	2.6	2.9	3.3	4.3	5.3	6.1	96,143
Previous infant 4000+ grams <sup>3</sup> . . . . .	3,110,009	35,933	11.9	2.0	7.5	12.3	17.3	21.1	25.6	96,143
Previous preterm or small-for-gestational-age infant <sup>3</sup> . . . . .	3,110,009	34,224	11.4	5.1	10.6	11.3	13.2	16.1	18.3	96,143
Renal disease . . . . .	3,252,473	7,106	2.3	3.5	2.6	2.0	1.9	1.8	1.5	101,039
Rh sensitization <sup>5</sup> . . . . .	3,217,724	21,673	7.0	5.8	6.6	7.2	7.4	7.5	8.0	101,887
Uterine bleeding <sup>4</sup> . . . . .	2,986,321	25,335	8.7	6.4	7.6	8.6	10.1	10.8	11.6	72,148
Black										
Anemia . . . . .	679,236	22,705	34.7	40.2	37.9	31.6	27.1	28.3	27.7	25,775
Cardiac disease . . . . .	679,236	2,023	3.1	2.3	2.7	3.4	3.6	5.4	7.2	25,775
Acute or chronic lung disease . . . . .	679,236	2,669	4.1	4.3	3.9	3.8	4.1	4.9	5.4	25,775
Diabetes . . . . .	679,236	11,585	17.7	5.2	10.8	20.7	32.6	49.9	77.1	25,775
Genital herpes <sup>3,4</sup> . . . . .	619,329	4,605	7.7	8.2	8.8	7.2	6.3	5.0	4.6	19,262
Hydramnios/Oligohydramnios <sup>3</sup> . . . . .	662,688	4,383	6.9	6.0	6.6	6.9	7.8	8.8	13.7	24,735
Hemoglobinopathy <sup>3</sup> . . . . .	662,688	797	1.2	1.2	1.4	1.2	1.1	1.0	*	24,735
Hypertension, chronic . . . . .	679,236	7,070	10.8	3.5	5.8	10.8	20.2	38.5	66.7	25,775
Hypertension, pregnancy-associated . . . . .	679,236	17,911	27.4	30.2	24.3	24.6	29.3	38.3	49.4	25,775
Eclampsia . . . . .	679,236	3,888	5.9	8.4	5.2	4.8	5.3	6.2	10.8	25,775
Incompetent cervix <sup>3</sup> . . . . .	662,688	2,045	3.2	1.3	2.5	4.2	5.6	4.5	5.0	24,735
Previous infant 4000+ grams <sup>3</sup> . . . . .	662,688	2,743	4.3	1.0	3.2	5.6	7.7	9.1	9.6	24,735
Previous preterm or small-for-gestational-age infant <sup>3</sup> . . . . .	662,688	9,671	15.2	7.8	15.3	17.6	20.2	20.7	21.6	24,735
Renal disease . . . . .	679,236	1,378	2.1	2.3	2.2	2.1	1.6	2.1	*	25,775
Rh sensitization <sup>5</sup> . . . . .	675,894	2,030	3.1	2.7	3.1	3.3	3.4	3.8	5.4	25,859
Uterine bleeding <sup>4</sup> . . . . .	635,877	4,227	6.9	5.9	6.4	7.0	8.2	9.4	8.8	20,302

<sup>1</sup>Total number of births to residents of areas reporting specified medical risk factor.<sup>2</sup>Includes races other than white and black.<sup>3</sup>New York City (but not New York State) reports this risk factor.<sup>4</sup>Texas does not report this risk factor.<sup>5</sup>Kansas does not report this risk factor.

NOTE: Excludes data for Oklahoma, which did not require reporting of medical risk factors.

**Table 2. Number of live births by smoking status of mother, percent smokers, and percent distribution by average number of cigarettes smoked by mothers per day, according to age and race of mother: Total of 45 reporting States and the District of Columbia, 1990**

Smoking status, smoking measure, and race of mother	Age of mother									
	All ages	Under 15 years	15-19 years			20-24 years	25-29 years	30-34 years	35-39 years	40-49 years
			Total	15-17 years	18-19 years					
Number										
<b>All races<sup>1</sup></b>										
Total . . . . .	3,103,146	9,316	404,409	142,181	262,228	824,541	954,363	651,077	225,704	33,736
Smoker . . . . .	551,080	673	81,125	24,121	57,004	175,392	165,336	95,789	28,803	3,962
Nonsmoker . . . . .	2,437,784	8,309	309,073	112,970	196,103	619,916	754,631	530,214	187,364	28,277
Not stated . . . . .	114,282	334	14,211	5,090	9,121	29,233	34,396	25,074	9,537	1,497
White										
Total . . . . .	2,443,822	3,535	264,695	84,647	180,048	620,227	788,908	550,146	188,729	27,582
Smoker . . . . .	455,940	540	69,911	20,743	49,168	146,105	135,591	77,487	23,123	3,183
Nonsmoker . . . . .	1,899,598	2,845	185,457	60,749	124,708	452,733	625,839	451,907	157,664	23,153
Not stated . . . . .	88,284	150	9,327	3,155	6,172	21,389	27,478	20,752	7,942	1,246
Black										
Total . . . . .	557,392	5,567	129,517	53,984	75,533	180,432	133,583	76,977	27,060	4,256
Smoker . . . . .	85,002	114	9,419	2,780	6,639	26,066	27,020	16,639	5,082	662
Nonsmoker . . . . .	450,942	5,286	115,632	49,415	66,217	147,454	101,042	57,194	20,904	3,430
Not stated . . . . .	21,448	167	4,466	1,789	2,677	6,912	5,521	3,144	1,074	164
Percent										
Smoker <sup>1</sup> . . . . .	18.4	7.5	20.8	17.6	22.5	22.1	18.0	15.3	13.3	12.3
White . . . . .	19.4	16.0	27.4	25.5	28.3	24.4	17.8	14.6	12.8	12.1
Black . . . . .	15.9	2.1	7.5	5.3	9.1	15.0	21.1	22.5	19.6	16.2
Percent distribution										
<b>All races<sup>1</sup></b>										
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1-5 cigarettes . . . . .	19.9	36.7	24.5	28.1	23.0	20.1	18.7	18.4	18.1	17.5
6-10 cigarettes . . . . .	39.2	42.2	42.9	43.1	42.9	40.4	38.5	36.6	34.5	32.2
11-15 cigarettes . . . . .	6.6	3.5	5.4	4.9	5.6	6.4	7.1	7.0	6.6	6.2
16-20 cigarettes . . . . .	28.2	14.5	23.5	20.9	24.6	28.0	29.1	29.8	30.7	31.8
21-30 cigarettes . . . . .	4.3	*	2.6	2.1	2.8	3.6	4.6	5.5	6.4	7.0
31-40 cigarettes . . . . .	1.6	*	0.8	0.6	0.9	1.2	1.7	2.4	3.2	4.2
41 cigarettes or more . . . . .	0.3	*	0.2	0.2	0.2	0.2	0.3	0.3	0.5	1.0
White										
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1-5 cigarettes . . . . .	17.2	31.2	21.4	24.8	20.0	17.0	16.2	16.2	16.1	15.3
6-10 cigarettes . . . . .	38.4	45.3	43.4	44.0	43.2	39.8	37.2	35.2	32.9	30.1
11-15 cigarettes . . . . .	7.2	*	5.8	5.4	6.0	7.1	7.8	7.7	7.1	6.7
16-20 cigarettes . . . . .	30.4	17.0	25.5	22.6	26.6	30.5	31.6	31.8	32.5	34.0
21-30 cigarettes . . . . .	4.8	*	2.9	2.3	3.1	4.0	5.2	6.2	7.3	8.1
31-40 cigarettes . . . . .	1.7	*	0.8	0.7	0.9	1.3	1.8	2.6	3.5	4.6
41 cigarettes or more . . . . .	0.3	*	0.2	0.2	0.2	0.2	0.3	0.4	0.5	1.1
Black										
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1-5 cigarettes . . . . .	32.7	62.0	44.5	49.2	42.5	35.9	30.1	27.4	26.2	25.9
6-10 cigarettes . . . . .	43.4	27.0	40.2	37.5	41.3	43.4	45.3	42.7	41.2	41.9
11-15 cigarettes . . . . .	3.4	*	2.5	1.9	2.8	2.9	3.6	4.2	4.4	4.5
16-20 cigarettes . . . . .	17.4	*	10.9	9.9	11.3	15.3	17.8	21.6	23.3	21.7
21-30 cigarettes . . . . .	1.9	*	1.0	0.9	1.1	1.4	1.9	2.6	2.7	*
31-40 cigarettes . . . . .	1.1	*	0.7	*	0.7	0.9	1.2	1.3	1.8	*
41 cigarettes or more . . . . .	0.2	*	*	*	*	0.2	0.2	0.2	0.4	*

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, New York, Oklahoma, and South Dakota, which did not require reporting of tobacco use during pregnancy.

Table 3. Number of live births by smoking status of mother and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 44 reporting States and the District of Columbia, 1990

Smoking status and origin of mother	Age of mother									
	All ages	Under 15 years	15-19 years			20-24 years	25-29 years	30-34 years	35-39 years	40-49 years
			Total	15-17 years	18-19 years					
All origins <sup>1</sup>										
Total	3,085,577	9,308	403,151	141,833	261,318	820,762	948,126	646,459	224,227	33,544
Smoker	547,433	671	80,640	23,993	56,647	174,265	164,170	95,139	28,608	3,940
Nonsmoker	2,423,903	8,303	308,303	112,751	195,552	617,272	749,568	526,264	186,085	28,108
Not stated	114,241	334	14,208	5,089	9,119	29,225	34,388	25,056	9,534	1,496
Hispanic										
Total	294,372	1,354	52,092	20,029	32,063	93,445	81,152	46,292	16,766	3,271
Smoker	18,742	56	3,352	1,202	2,150	6,122	5,171	2,928	954	159
Nonsmoker	259,529	1,212	45,719	17,612	28,107	82,134	71,642	40,967	14,942	2,913
Not stated	16,101	86	3,021	1,215	1,806	5,189	4,339	2,397	870	199
Mexican										
Total	180,257	863	33,600	12,863	20,737	59,297	48,218	26,758	9,677	1,844
Smoker	8,891	30	1,565	591	974	2,891	2,454	1,417	452	82
Nonsmoker	160,251	782	29,944	11,432	18,512	52,840	42,745	23,685	8,622	1,633
Not stated	11,115	51	2,091	840	1,251	3,566	3,019	1,656	603	129
Puerto Rican										
Total	34,128	224	7,676	3,128	4,548	11,821	8,497	4,243	1,364	303
Smoker	4,325	12	877	304	573	1,563	1,139	564	149	21
Nonsmoker	27,571	196	6,249	2,586	3,663	9,460	6,830	3,424	1,150	262
Not stated	2,232	16	550	238	312	798	528	255	65	20
Cuban										
Total	9,758	15	755	247	508	1,915	3,813	2,280	842	138
Smoker	618	1	49	15	34	129	232	141	58	8
Nonsmoker	9,002	14	697	229	468	1,762	3,532	2,102	767	128
Not stated	138	-	9	3	6	24	49	37	17	2
Central and South American										
Total	32,026	58	2,790	891	1,899	8,533	10,410	6,975	2,706	554
Smoker	933	-	75	20	55	229	288	234	88	19
Nonsmoker	29,939	56	2,631	844	1,787	7,992	9,744	6,490	2,515	511
Not stated	1,154	2	84	27	57	312	378	251	103	24
Other and unknown Hispanic										
Total	38,203	194	7,271	2,900	4,371	11,879	10,214	6,036	2,177	432
Smoker	3,975	13	786	272	514	1,310	1,058	572	207	29
Nonsmoker	32,766	164	6,198	2,521	3,677	10,080	8,791	5,266	1,888	379
Not stated	1,462	17	287	107	180	489	365	198	82	24
Non-Hispanic										
Total <sup>2</sup>	2,764,498	7,890	347,519	120,531	226,988	720,375	859,082	594,396	205,324	29,912
Smoker	523,694	611	76,488	22,551	53,937	166,451	157,581	91,403	27,424	3,736
Nonsmoker	2,146,873	7,044	260,387	94,321	166,066	530,916	672,630	481,338	169,614	24,944
Not stated	93,931	235	10,644	3,659	6,985	23,008	28,871	21,655	8,286	1,232
White										
Total	2,122,358	2,198	210,817	64,158	146,659	521,150	698,363	496,426	169,440	23,964
Smoker	430,418	487	65,572	19,266	46,306	137,773	128,375	73,405	21,838	2,968
Nonsmoker	1,622,383	1,648	139,153	43,045	96,108	367,716	547,624	405,428	140,810	20,004
Not stated	69,557	63	6,092	1,847	4,245	15,661	22,364	17,593	6,792	992
Black										
Total	547,245	5,504	127,597	53,219	74,378	177,412	130,850	75,277	26,465	4,140
Smoker	83,803	108	9,255	2,727	6,528	25,692	26,653	16,426	5,015	654
Nonsmoker	443,171	5,236	114,135	48,802	65,333	145,176	98,972	55,890	20,436	3,326
Not stated	20,271	160	4,207	1,690	2,517	6,544	5,225	2,961	1,014	160

Table 3. Number of live births by smoking status of mother and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 44 reporting States and the District of Columbia, 1990—Con.

Smoking status and origin of mother	Age of mother									
	All ages	Under 15 years	15–19 years			20–24 years	25–29 years	30–34 years	35–39 years	40–49 years
			Total	15–17 years	18–19 years					
				Percent						
All origins <sup>1</sup> . . . . .	18.4	7.5	20.7	17.5	22.5	22.0	18.0	15.3	13.3	12.3
Hispanic . . . . .	6.7	4.4	6.8	6.4	7.1	6.9	6.7	6.7	6.0	5.2
Mexican . . . . .	5.3	3.7	5.0	4.9	5.0	5.2	5.4	5.6	5.0	4.8
Puerto Rican . . . . .	13.6	*	12.3	10.5	13.5	14.2	14.3	14.1	11.5	7.4
Cuban . . . . .	6.4	*	6.6	*	6.8	6.8	6.2	6.3	7.0	*
Central and South American . . . . .	3.0	*	2.8	2.3	3.0	2.8	2.9	3.5	3.4	*
Other and unknown Hispanic . . . . .	10.8	*	11.3	9.7	12.3	11.5	10.7	9.8	9.9	7.1
Non-Hispanic <sup>2</sup> . . . . .	19.6	8.0	22.7	19.3	24.5	23.9	19.0	16.0	13.9	13.0
White . . . . .	21.0	22.8	32.0	30.9	32.5	27.3	19.0	15.3	13.4	12.9
Black . . . . .	15.9	2.0	7.5	5.3	9.1	15.0	21.2	22.7	19.7	16.4

<sup>1</sup>Includes origin not stated.

<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, New Hampshire, New York, Oklahoma, and South Dakota, which did not require reporting of either Hispanic origin of mother or tobacco use during pregnancy.

Table 4. Number of live births, percent of mothers who smoked cigarettes during pregnancy and percent distribution of average number of cigarettes smoked by mothers per day, according to educational attainment and race of mother: Total of 44 reporting States and the District of Columbia, 1990

Smoking measure and race of mother	Total	Years of school completed by mother					Not stated
		0-8 years	9-11 years	12 years	13-15 years	16 years or more	
All births							
All races <sup>1</sup> . . . . .	3,023,895	134,771	513,526	1,172,144	617,975	541,781	43,698
White . . . . .	2,373,156	107,413	349,282	904,320	500,125	480,535	31,481
Black . . . . .	554,484	19,761	149,604	235,766	101,301	38,723	9,329
Percent							
Smoker <sup>1</sup> . . . . .	18.4	19.2	33.3	21.2	12.7	4.5	16.8
White . . . . .	19.3	21.3	38.8	23.0	13.0	4.5	17.0
Black . . . . .	15.9	12.7	21.5	15.6	12.1	5.9	19.8
Percent distribution							
All races <sup>1</sup>							
Smoker. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less. . . . .	59.0	52.5	57.3	58.5	62.5	70.8	59.1
11-20 cigarettes . . . . .	34.8	38.0	35.8	35.6	32.2	25.1	34.6
21 cigarettes or more . . . . .	6.2	9.5	6.9	5.9	5.3	4.1	6.3
White							
Smoker. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less. . . . .	55.4	49.9	52.8	55.1	59.5	69.8	55.1
11-20 cigarettes . . . . .	37.7	39.9	39.5	38.4	34.6	25.9	37.5
21 cigarettes or more . . . . .	6.9	10.2	7.7	6.5	5.8	4.3	7.4
Black							
Smoker. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less. . . . .	76.0	71.4	74.9	77.0	77.3	78.7	69.6
11-20 cigarettes . . . . .	20.8	23.8	21.3	20.3	20.2	18.4	27.1
21 cigarettes or more . . . . .	3.2	4.9	3.8	2.7	2.5	2.9	3.3

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, New York, Oklahoma, South Dakota, and Washington, which did not require reporting of either tobacco use during pregnancy or educational attainment of mother.

**Table 5. Percent low birthweight by smoking status, age, and race of mother: Total of 45 reporting States and the District of Columbia, 1990**

[Low birthweight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

Smoking status and race of mother	Age of mother									
	All ages	Under 15 years	15-19 years		20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
			Total	15-17 years						18-19 years
All races <sup>1</sup>	7.2	13.7	9.7	10.6	9.1	7.3	6.3	6.4	7.5	8.5
Smoker	11.3	15.8	11.2	11.7	10.9	10.2	10.9	12.5	15.0	16.2
Nonsmoker	6.1	13.4	9.2	10.3	8.5	6.4	5.1	5.2	6.2	7.3
Not stated	9.3	17.3	12.1	13.8	11.2	9.6	8.2	8.5	9.6	10.5
White	5.8	10.6	7.8	8.6	7.4	5.9	5.1	5.3	6.3	7.5
Smoker	9.4	15.4	10.3	11.0	10.0	8.7	8.9	10.0	12.4	14.4
Nonsmoker	4.8	9.5	6.7	7.6	6.3	4.9	4.2	4.4	5.4	6.5
Not stated	7.5	15.1	9.8	11.3	9.1	7.7	6.5	7.2	8.3	8.8
Black	13.3	15.7	13.7	14.0	13.4	12.4	13.1	14.4	15.3	15.6
Smoker	21.2	19.5	18.1	17.2	18.5	18.8	21.5	24.1	27.1	25.9
Nonsmoker	11.7	15.5	13.2	13.7	12.8	11.1	10.6	11.4	12.3	13.2
Not stated	16.7	19.8	17.0	18.4	16.1	15.4	16.8	17.5	18.3	24.5

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, New York, Oklahoma, and South Dakota, which did not require reporting of tobacco use during pregnancy.

Table 6. Number of live births by drinking status of mother, percent drinkers, and percent distribution by average numbers of drinks per week, according to age and race of mother: Total of 46 reporting States and the Distict of Columbia, 1990

Drinking status, drinking measure, and race of mother	Age of mother									
	All ages	Under 15 years	15-19 years			20-24 years	25-29 years	30-34 years	35-39 years	40-49 years
			Total	15-17 years	18-19 years					
Number										
Total . . . . .	3,189,360	9,524	416,744	146,311	270,433	849,898	981,555	666,713	230,500	34,426
Drinker . . . . .	101,329	80	7,391	2,129	5,262	22,295	32,968	27,081	10,079	1,435
Nondrinker . . . . .	2,959,930	9,067	393,279	138,436	254,843	794,681	910,083	611,621	209,865	31,334
Not stated . . . . .	128,101	377	16,074	5,746	10,328	32,922	38,504	28,011	10,556	1,657
White										
Total . . . . .	2,519,599	3,638	274,431	87,673	186,758	642,180	813,669	564,411	193,068	28,202
Drinker . . . . .	78,050	45	5,346	1,554	3,792	15,729	25,234	22,048	8,434	1,214
Nondrinker . . . . .	2,341,350	3,414	258,234	82,445	175,789	601,949	757,366	518,985	175,801	25,601
Not stated . . . . .	100,199	179	10,851	3,674	7,177	24,502	31,069	23,378	8,833	1,387
Black										
Total . . . . .	566,865	5,671	132,027	55,061	76,966	183,632	135,700	78,098	27,425	4,312
Drinker . . . . .	20,321	26	1,651	444	1,207	5,731	6,893	4,439	1,403	178
Nondrinker . . . . .	523,617	5,465	125,608	52,702	72,906	170,504	122,903	70,314	24,863	3,960
Not stated . . . . .	22,927	180	4,768	1,915	2,853	7,397	5,904	3,345	1,159	174
Percent										
Drinker <sup>1</sup> . . . . .	3.3	0.9	1.8	1.5	2.0	2.7	3.5	4.2	4.6	4.4
White . . . . .	3.2	1.3	2.0	1.9	2.1	2.5	3.2	4.1	4.6	4.5
Black . . . . .	3.7	0.5	1.3	0.8	1.6	3.3	5.3	5.9	5.3	4.3
Percent distribution										
All races <sup>1</sup>										
Drinker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less . . . . .	61.9	65.9	62.0	63.6	61.4	60.1	62.4	63.0	61.6	58.4
2 drinks . . . . .	16.4	*	15.4	15.6	15.3	16.1	16.1	16.8	17.4	17.1
3-4 drinks . . . . .	10.4	*	10.3	9.8	10.5	11.2	10.1	9.9	10.5	10.6
5 drinks or more . . . . .	11.3	*	12.3	11.0	12.8	12.6	11.4	10.2	10.6	14.0
White										
Drinker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less . . . . .	68.0	*	65.7	65.3	65.9	67.4	69.6	68.4	65.5	60.7
2 drinks . . . . .	15.3	*	13.8	14.2	13.6	14.2	14.7	15.9	17.1	17.4
3-4 drinks . . . . .	8.7	*	9.1	9.4	9.0	8.9	8.1	8.7	9.4	9.4
5 drinks or more . . . . .	8.1	*	11.4	11.1	11.5	9.5	7.5	7.0	8.0	12.4
Black										
Drinker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less . . . . .	39.0	*	50.5	59.8	47.2	41.3	36.8	35.8	37.9	41.2
2 drinks . . . . .	21.1	*	20.4	18.9	21.0	21.3	21.3	21.5	19.3	16.0
3-4 drinks . . . . .	16.9	*	14.6	10.7	16.1	17.3	17.2	16.5	17.1	17.6
5 drinks or more . . . . .	23.1	*	14.4	10.7	15.8	20.2	24.7	26.3	25.7	25.2

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, New York, Oklahoma, and South Dakota, which did not require reporting of alcohol use during pregnancy.

Table 7. Number of live births by drinking status of mother and percent drinkers, by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 45 reporting States and the District of Columbia, 1990

Drinking status of mother	All origins <sup>1</sup>	Origin of mother								
		Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total <sup>2</sup>	White	Black
Number										
Total . . . . .	3,171,791	296,228	181,612	34,376	9,771	32,081	38,388	2,848,555	2,196,291	556,631
Drinker . . . . .	100,304	4,561	2,266	943	82	335	935	94,462	71,711	19,963
Nondrinker . . . . .	2,943,435	272,713	165,782	31,084	9,548	30,553	35,746	2,650,199	2,046,668	515,173
Not stated . . . . .	128,052	18,954	13,564	2,349	141	1,193	1,707	103,894	77,912	21,495
Percent										
Drinker . . . . .	3.3	1.6	1.3	2.9	0.9	1.1	2.5	3.4	3.4	3.7

<sup>1</sup>Includes origin not stated.

<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California, New Hampshire, New York, Oklahoma, and South Dakota, which did not require reporting of either alcohol use during pregnancy or Hispanic origin of mother.

Table 8. Number of live births and percent distribution by weight gain during pregnancy and median weight gain, according to period of gestation and race of mother: Total of 48 reporting States and the District of Columbia, 1990

Period of gestation and race of mother <sup>1</sup>	All births	Weight gain during pregnancy									Median weight gain
		Total	Less than 16 pounds	16-20 pounds	21-25 pounds	26-30 pounds	31-35 pounds	36-40 pounds	41-45 pounds	46 pounds or more	
All races <sup>2</sup>											
All gestational periods <sup>3</sup> . . . . .	Number	Percent distribution									Pounds
Under 37 weeks . . . . .	3,497,935	100.0	9.2	11.2	15.7	20.8	14.8	12.5	6.2	9.7	30.4
37-39 weeks . . . . .	374,531	100.0	17.2	15.6	16.5	18.2	11.1	9.3	4.5	7.6	26.3
40 weeks and over . . . . .	1,434,635	100.0	8.9	11.5	16.5	21.4	14.9	12.1	5.9	8.8	30.3
40 weeks and over . . . . .	1,669,964	100.0	7.7	9.9	14.9	20.8	15.5	13.5	6.8	10.9	30.7
White											
All gestational periods <sup>3</sup> . . . . .	2,749,497	100.0	7.8	10.3	15.7	21.4	15.6	13.0	6.5	9.8	30.6
Under 37 weeks . . . . .	243,182	100.0	14.0	14.5	16.9	19.2	12.3	10.0	5.0	8.1	27.9
37-39 weeks . . . . .	1,118,183	100.0	7.7	10.7	16.6	22.0	15.7	12.6	6.1	8.8	30.4
40 weeks and over . . . . .	1,374,935	100.0	6.8	9.3	14.9	21.2	16.2	13.8	7.0	10.9	30.9
Black											
All gestational periods <sup>3</sup> . . . . .	630,249	100.0	15.5	14.8	15.3	18.0	11.0	10.5	5.0	9.8	28.1
Under 37 weeks . . . . .	118,926	100.0	24.4	18.0	15.4	15.9	8.4	7.8	3.4	6.6	24.7
37-39 weeks . . . . .	263,126	100.0	14.4	14.9	15.8	18.7	11.3	10.6	5.0	9.3	28.3
40 weeks and over . . . . .	243,318	100.0	12.6	13.3	14.8	18.3	11.9	11.6	5.8	11.7	30.2

<sup>1</sup>Expressed in completed weeks.

<sup>2</sup>Includes races other than white and black.

<sup>3</sup>Includes births with period of gestation not stated.

NOTE: Excludes data for California and Oklahoma, which did not require reporting of weight gain during pregnancy.

**Table 9. Percent low birthweight by weight gain during pregnancy, by period of gestation, and race of mother: Total of 48 reporting States and the District of Columbia, 1990**

[Low birthweight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

Period of gestation and race of mother <sup>1</sup>	Total	Weight gain during pregnancy								Not stated
		Less than 16 pounds	16-20 pounds	21-25 pounds	26-30 pounds	31-35 pounds	36-40 pounds	41-45 pounds	46 pounds or more	
All gestational periods <sup>2</sup>										
All races <sup>3</sup> . . . . .	7.2	15.8	10.5	7.0	5.3	4.2	4.1	4.0	4.2	10.9
White . . . . .	5.8	12.8	8.9	6.0	4.5	3.7	3.5	3.6	3.8	8.4
Black . . . . .	13.3	23.4	16.3	12.2	9.8	7.8	7.4	6.5	6.3	17.8
Under 37 weeks										
All races <sup>3</sup> . . . . .	41.6	58.0	46.8	39.0	34.2	31.1	30.2	30.7	30.6	49.1
White . . . . .	40.0	58.0	46.9	38.7	33.8	30.9	30.0	31.2	30.9	46.6
Black . . . . .	45.5	58.9	47.7	40.6	35.9	32.4	31.1	30.5	30.2	53.2
37-39 weeks										
All races <sup>3</sup> . . . . .	4.6	8.2	6.5	4.8	3.8	3.2	3.2	3.1	3.4	6.0
White . . . . .	3.9	6.7	5.5	4.1	3.3	2.9	2.8	2.8	3.2	4.8
Black . . . . .	7.7	11.9	9.6	7.9	6.5	5.3	5.2	4.6	4.4	9.3
40 weeks and over										
All races <sup>3</sup> . . . . .	1.6	3.5	2.6	1.8	1.3	1.1	1.0	0.9	0.9	2.4
White . . . . .	1.3	2.7	2.0	1.5	1.1	0.9	0.8	0.8	0.8	1.8
Black . . . . .	3.6	6.2	5.0	3.6	2.9	2.4	2.2	1.8	1.6	4.6

<sup>1</sup>Expressed in completed weeks.  
<sup>2</sup>Includes births with period of gestation not stated.  
<sup>3</sup>Includes races other than white and black.

NOTE: Excludes data for California and Oklahoma, which did not require reporting of weight gain during pregnancy.

**Table 10. Percent low birthweight by weight gain during pregnancy and Hispanic origin of mother, and by race of mother for mothers of non-Hispanic origin: Total of 47 reporting States and the District of Columbia, 1990**

[Low birthweight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

Origin of mother	Total	Weight gain during pregnancy								Not stated
		Less than 16 pounds	16-20 pounds	21-25 pounds	26-30 pounds	31-35 pounds	36-40 pounds	41-45 pounds	46 pounds or more	
All origins <sup>1</sup> . . . . .	7.2	15.8	10.5	7.1	5.3	4.2	4.1	4.0	4.2	10.9
Hispanic . . . . .	6.7	12.0	8.3	6.2	4.9	4.1	4.0	3.8	3.8	8.5
Mexican . . . . .	6.0	10.5	7.4	5.6	4.4	3.8	3.8	3.7	3.4	7.3
Puerto Rican . . . . .	9.1	16.3	11.5	8.0	6.3	5.3	4.7	3.6	5.1	12.1
Cuban . . . . .	5.6	13.4	10.2	5.9	4.7	4.1	3.1	*	3.2	8.7
Central and South American . . . . .	6.0	11.3	7.3	6.1	4.6	3.7	3.9	3.8	3.9	7.1
Other and unknown Hispanic . . . . .	7.4	14.0	9.1	7.1	5.6	4.5	4.3	4.8	3.4	10.6
Non-Hispanic <sup>2</sup> . . . . .	7.2	16.2	10.8	7.1	5.3	4.2	4.1	4.0	4.2	11.4
White . . . . .	5.7	12.9	9.0	6.0	4.5	3.7	3.5	3.5	3.8	8.2
Black . . . . .	13.4	23.5	16.4	12.3	9.8	7.9	7.4	6.5	6.3	17.9

<sup>1</sup>Includes origin not stated.  
<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California, New Hampshire, and Oklahoma, which did not require reporting of either weight gain during pregnancy or Hispanic origin of mother.

**Table 11. Live births with selected obstetric procedures and rates for selected obstetric procedures, by age and race of mother: Total of 49 reporting States and the District of Columbia, 1990**

[Rates are number of live births with specified procedure per 1,000 live births in specified group]

Obstetric procedure and race of mother	All births <sup>1</sup>	Obstetric procedure reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
<b>All races<sup>2</sup></b>	<b>Number</b>			<b>Rate</b>						<b>Number</b>
Amniocentesis . . . . .	4,110,563	133,868	33.4	13.8	16.5	19.3	33.1	156.3	193.9	103,783
Electronic fetal monitoring . . . . .	4,110,563	2,933,662	732.2	741.1	735.7	735.9	726.0	711.6	702.4	103,783
Induction of labor . . . . .	4,110,563	381,975	95.3	81.6	92.1	99.7	98.9	100.6	104.7	103,783
Stimulation of labor . . . . .	4,110,563	456,556	113.9	109.9	112.7	116.9	114.5	111.9	112.0	103,783
Tocolysis . . . . .	4,110,563	63,973	16.0	19.3	16.7	14.9	14.8	15.6	15.0	103,783
Ultrasound <sup>3</sup> . . . . .	3,914,773	2,000,944	524.7	506.2	517.6	531.0	530.7	537.8	528.7	10*,499
<b>White</b>										
Amniocentesis . . . . .	3,252,473	114,750	36.2	15.0	17.5	19.9	34.7	167.6	208.7	78,737
Electronic fetal monitoring . . . . .	3,252,473	2,342,253	738.0	746.9	741.2	742.4	732.7	717.4	708.9	78,737
Induction of labor . . . . .	3,252,473	326,384	102.8	90.6	100.8	106.4	104.5	105.9	110.4	78,737
Stimulation of labor . . . . .	3,252,473	371,460	117.0	114.1	116.1	119.5	117.0	114.8	115.4	78,737
Tocolysis . . . . .	3,252,473	49,597	15.6	19.1	16.4	14.6	14.6	15.5	14.9	78,737
Ultrasound <sup>3</sup> . . . . .	3,105,232	1,627,757	537.5	523.6	531.2	542.4	541.0	547.7	538.7	77,127
<b>Black</b>										
Amniocentesis . . . . .	679,236	12,569	19.1	11.2	13.0	16.0	22.4	81.8	108.3	20,789
Electronic fetal monitoring . . . . .	679,236	475,588	722.3	733.3	724.5	717.7	712.6	710.1	712.5	20,789
Induction of labor . . . . .	679,236	44,114	67.0	62.3	63.6	68.9	73.1	79.5	88.6	20,789
Stimulation of labor . . . . .	679,236	66,707	101.3	101.0	101.2	103.3	99.7	99.6	94.2	20,789
Tocolysis . . . . .	679,236	12,212	18.5	20.0	18.8	17.9	17.3	17.5	17.2	20,789
Ultrasound <sup>3</sup> . . . . .	635,916	295,727	480.3	467.3	474.6	485.8	492.9	506.8	505.4	20,206

<sup>1</sup>Total number of births to residents of areas reporting specified obstetric procedure.  
<sup>2</sup>Includes races other than white and black.  
<sup>3</sup>Illinois does not report this procedure.  
 NOTE: Excludes data for Oklahoma, which did not require reporting of obstetric procedures.

**Table 12. Live births with selected complications of labor and/or delivery and rates for selected complications by age and race of mother: Total of 49 reporting States and the District of Columbia, 1990**

[Rates are number of live births with specified complication per 1,000 live births in specified group]

Complication and race of mother	All births <sup>1</sup>	Complication reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
<b>All races<sup>2</sup></b>				<b>Rate</b>						<b>Number</b>
Febrile . . . . .	4,110,563	47,889	12.0	15.7	12.7	11.4	10.4	10.5	10.4	121,736
Meconium, moderate/heavy . . . . .	4,110,563	241,088	60.4	66.3	62.0	58.1	57.7	61.4	65.4	121,736
Premature rupture of membrane . . . . .	4,110,563	133,176	33.4	33.8	31.7	32.4	34.6	38.0	40.7	121,736
Abruptio placenta . . . . .	4,110,563	24,892	6.2	6.1	6.0	6.0	6.4	7.7	9.3	121,736
Placenta previa . . . . .	4,110,563	14,348	3.6	1.3	2.3	3.5	5.1	7.1	10.0	121,736
Other excessive bleeding . . . . .	4,110,563	21,266	5.3	4.9	5.1	5.1	5.6	6.6	8.1	121,736
Seizures during labor . . . . .	4,110,563	1,705	0.4	0.8	0.5	0.3	0.3	0.3	0.6	121,736
Precipitous labor . . . . .	4,110,563	72,311	18.1	14.1	17.4	18.0	20.2	21.4	22.1	121,736
Prolonged labor . . . . .	4,110,563	42,642	10.7	12.2	11.2	10.5	9.6	10.2	11.6	121,736
Dysfunctional labor . . . . .	4,110,563	117,937	29.6	29.0	29.5	30.0	28.9	30.2	34.0	121,736
Breech/Malpresentation . . . . .	4,110,563	152,603	38.3	30.1	32.9	39.2	43.7	49.0	55.0	121,736
Cephalopelvic disproportion <sup>3,4</sup> . . . . .	3,631,762	132,047	37.2	36.4	37.1	39.0	35.8	36.1	36.7	85,631
Cord prolapse . . . . .	4,110,563	12,148	3.0	2.8	3.0	3.0	3.2	3.4	4.3	121,736
Anesthetic complication <sup>4</sup> . . . . .	3,794,140	2,087	0.6	0.4	0.5	0.6	0.6	0.8	0.9	90,077
Fetal distress <sup>4</sup> . . . . .	3,794,140	158,680	42.8	49.2	44.1	40.2	39.9	45.0	56.1	90,077
<b>White</b>										
Febrile . . . . .	3,252,473	35,378	11.2	14.1	12.0	10.9	9.8	10.0	9.9	94,882
Meconium, moderate/heavy . . . . .	3,252,473	175,218	55.5	59.1	56.4	53.7	54.1	57.7	61.8	94,882
Premature rupture of membrane . . . . .	3,252,473	101,170	32.0	32.1	30.2	31.0	33.3	37.2	40.6	94,882
Abruptio placenta . . . . .	3,252,473	18,979	6.0	6.0	5.7	5.7	6.1	7.3	9.0	94,882
Placenta previa . . . . .	3,252,473	11,115	3.5	1.3	2.2	3.4	4.9	6.7	9.5	94,882
Other excessive bleeding . . . . .	3,252,473	16,679	5.3	5.1	5.1	5.0	5.4	6.4	7.8	94,882
Seizures during labor . . . . .	3,252,473	1,232	0.4	0.7	0.4	0.3	0.3	0.3	0.6	94,882
Precipitous labor . . . . .	3,252,473	54,555	17.3	12.5	15.8	17.1	19.8	21.3	22.0	94,882
Prolonged labor . . . . .	3,252,473	34,773	11.0	13.1	11.7	10.7	9.8	10.6	11.7	94,882
Dysfunctional labor . . . . .	3,252,473	97,026	30.7	31.4	31.0	30.9	29.4	31.2	34.5	94,882
Breech/Malpresentation . . . . .	3,252,473	127,111	40.3	33.5	35.1	40.6	44.6	49.7	55.0	94,882
Cephalopelvic disproportion <sup>3,4</sup> . . . . .	2,843,857	108,093	38.9	38.7	39.9	40.4	36.5	37.2	36.4	65,047
Cord prolapse . . . . .	3,252,473	9,569	3.0	2.7	2.9	2.9	3.2	3.3	4.4	94,882
Anesthetic complication <sup>4</sup> . . . . .	2,986,321	1,671	0.6	0.5	0.5	0.6	0.6	0.8	0.8	68,642
Fetal distress <sup>4</sup> . . . . .	2,986,321	118,893	40.7	48.0	42.7	38.1	37.6	42.3	54.6	68,642
<b>Black</b>										
Febrile . . . . .	679,236	10,195	15.5	19.4	15.3	13.8	13.8	13.1	12.8	22,955
Meconium, moderate/heavy . . . . .	679,236	56,633	86.3	83.3	84.5	87.7	88.9	95.4	94.4	22,955
Premature rupture of membrane . . . . .	679,236	26,595	40.5	37.7	37.6	41.4	46.8	48.3	48.5	22,955
Abruptio placenta . . . . .	679,236	4,986	7.6	6.5	7.2	7.8	8.6	10.6	12.6	22,955
Placenta previa . . . . .	679,236	2,416	3.7	1.5	2.7	4.1	6.5	8.4	10.1	22,955
Other excessive bleeding . . . . .	679,236	2,943	4.5	3.8	4.2	4.5	5.9	6.3	5.8	22,955
Seizures during labor . . . . .	679,236	402	0.6	1.0	0.6	0.5	0.4	*	*	22,955
Precipitous labor . . . . .	679,236	14,046	21.4	17.3	22.6	22.8	22.7	22.1	21.0	22,955
Prolonged labor . . . . .	679,236	5,600	8.5	9.8	8.5	8.3	7.5	7.3	8.6	22,955
Dysfunctional labor . . . . .	679,236	16,494	25.1	24.3	24.5	25.9	25.9	25.5	31.6	22,955
Breech/Malpresentation . . . . .	679,236	19,502	29.7	22.4	25.2	32.2	39.1	47.1	56.6	22,955
Cephalopelvic disproportion <sup>3,4</sup> . . . . .	619,329	18,007	29.9	32.6	28.2	30.8	29.0	26.4	32.4	17,496
Cord prolapse . . . . .	679,236	2,163	3.3	3.0	3.1	3.3	3.8	4.0	4.9	22,955
Anesthetic complication <sup>4</sup> . . . . .	635,877	326	0.5	0.4	0.5	0.6	0.7	0.8	*	18,250
Fetal distress <sup>4</sup> . . . . .	635,877	33,733	54.6	53.1	51.0	54.4	58.9	68.3	74.1	18,250

<sup>1</sup>Total number of births to residents of areas reporting specified complication.

<sup>2</sup>Includes races other than white and black.

<sup>3</sup>New York City (but not New York State) reports this complication.

<sup>4</sup>Texas does not report this complication.

NOTE: Excludes data for Oklahoma, which did not require reporting of complications of labor and/or delivery.

Table 13. Live births by method of delivery, and rates of cesarean delivery and vaginal birth after previous cesarean delivery, by age and race of mother: Total of 49 reporting States and the District of Columbia, 1990

Age and race of mother	All births	Births by method of delivery						Cesarean delivery rate			Rate of vaginal birth after previous cesarean <sup>4</sup>
		Vaginal		Cesarean			Not stated	Total <sup>1</sup>	Primary <sup>2</sup>	Repeat <sup>3</sup>	
		Total	After previous cesarean	Total	Primary	Repeat					
All races <sup>5</sup>	4,110,563	3,111,421	84,299	914,096	575,066	339,030	85,046	22.7	16.0	37.1	19.9
Under 20 years	525,779	429,660	4,091	85,253	73,283	11,970	10,866	16.6	14.7	14.0	25.5
20-24 years	1,078,851	842,633	18,497	214,145	145,856	68,289	22,073	20.3	15.0	31.9	21.3
25-29 years	1,263,051	948,891	28,223	288,066	175,350	112,716	26,094	23.3	16.0	39.1	20.0
30-34 years	877,893	638,511	24,091	221,178	121,404	99,774	18,204	25.7	16.5	45.1	19.4
35-39 years	315,107	218,652	8,329	89,689	49,363	40,326	6,766	29.1	19.0	45.0	17.1
40-49 years	49,882	33,074	1,068	15,765	9,810	5,955	1,043	32.3	23.5	37.8	15.2
White	3,252,473	2,453,857	67,191	732,713	458,656	274,057	65,903	23.0	16.1	37.4	19.7
Under 20 years	354,021	288,876	2,255	58,095	50,957	7,138	7,050	16.7	15.1	12.3	24.0
20-24 years	826,121	643,641	13,239	166,231	115,213	51,018	16,249	20.5	15.5	30.7	20.6
25-29 years	1,040,031	780,480	23,084	238,583	145,220	93,363	20,968	23.4	16.1	39.1	19.8
30-34 years	732,360	533,369	20,672	183,867	99,755	84,112	15,124	25.6	16.3	45.7	19.7
35-39 years	259,740	180,687	7,038	73,399	39,754	33,645	5,654	28.9	18.6	45.8	17.3
40-49 years	40,200	26,804	903	12,538	7,757	4,781	858	31.9	23.0	38.1	15.9
Black	679,236	516,581	13,496	146,472	93,476	52,996	16,183	22.1	15.7	36.2	20.3
Under 20 years	156,666	127,684	1,742	25,369	20,775	4,594	3,613	16.6	14.2	18.1	27.5
20-24 years	215,477	167,691	4,598	42,569	26,751	15,818	5,217	20.2	14.1	37.2	22.5
25-29 years	167,098	123,786	4,019	39,184	22,974	16,210	4,128	24.0	16.1	41.4	19.9
30-34 years	98,828	69,946	2,260	26,572	15,172	11,400	2,310	27.5	18.3	42.9	16.5
35-39 years	35,404	23,859	776	10,758	6,472	4,286	787	31.1	21.9	39.8	15.3
40-49 years	5,763	3,615	101	2,020	1,332	688	128	35.8	27.5	34.1	12.8

<sup>1</sup>Percent of all live births that are by cesarean delivery.

<sup>2</sup>Number of primary cesareans per 100 live births to women who have not had a previous cesarean.

<sup>3</sup>Percent of all cesareans that are repeat cesareans.

<sup>4</sup>Number of vaginal births after previous cesarean delivery per 100 live births to women with a previous cesarean delivery.

<sup>5</sup>Includes races other than white and black.

NOTE: Excludes data for Oklahoma, which did not require reporting of method of delivery.

Table 14. Rates of cesarean delivery and vaginal birth after previous cesarean delivery, by selected medical risk factors, complications of labor and/or delivery, and obstetric procedures: Total of 49 reporting States and the District of Columbia, 1990

Medical risk factor, complication, and obstetric procedure	All births with specified condition and/or procedure	Cesarean delivery rate			Rate of vaginal birth after previous cesarean <sup>4</sup>
		Total <sup>1</sup>	Primary <sup>2</sup>	Repeat <sup>3</sup>	
<b>Medical risk factors</b>					
Anemia . . . . .	72,563	25.8	18.5	37.3	21.8
Cardiac disease . . . . .	13,457	26.7	19.8	35.0	23.0
Acute or chronic lung disease . . . . .	12,102	29.8	22.1	35.8	20.8
Diabetes . . . . .	84,615	37.2	27.4	38.9	14.4
Genital herpes <sup>5,6</sup> . . . . .	27,539	46.0	40.6	24.7	22.8
Hydramnios/Oligohydramnios <sup>5</sup> . . . . .	22,633	45.6	40.2	22.5	15.4
Hemoglobinopathy <sup>5</sup> . . . . .	1,584	26.6	19.6	35.8	26.5
Hypertension, chronic . . . . .	25,961	41.4	32.2	35.2	12.8
Eclampsia . . . . .	15,797	52.3	48.7	15.6	12.6
Incompetent cervix <sup>5</sup> . . . . .	13,083	29.9	22.5	34.9	22.3
Renal disease . . . . .	8,790	28.3	21.0	35.3	20.0
Rh sensitization <sup>7</sup> . . . . .	24,044	24.4	17.1	38.5	22.3
Uterine bleeding <sup>6</sup> . . . . .	30,645	33.8	26.5	31.8	17.4
<b>Complications of labor and/or delivery</b>					
Febrile . . . . .	47,889	36.4	34.4	13.0	39.4
Premature rupture of membrane . . . . .	133,176	29.3	25.9	18.5	30.1
Abruptio placenta . . . . .	24,892	57.7	53.8	18.8	15.6
Placenta previa . . . . .	14,348	82.3	78.2	25.3	2.7
Other excessive bleeding . . . . .	21,266	28.3	21.6	32.8	24.6
Seizures during labor . . . . .	1,705	47.0	44.8	11.4	24.2
Precipitous labor (less than 3 hours) . . . . .	72,311	1.5	1.1	24.6	87.0
Prolonged labor (more than 20 hours) . . . . .	42,642	40.4	39.3	8.4	41.7
Dysfunctional labor . . . . .	117,937	65.2	63.4	11.4	16.9
Breech/Malpresentation . . . . .	152,603	84.5	83.0	13.4	4.7
Cephalopelvic disproportion <sup>8,9</sup> . . . . .	132,047	97.7	97.5	14.4	1.1
Cord prolapse . . . . .	12,148	59.5	56.9	12.5	13.0
Anesthetic complications <sup>9</sup> . . . . .	2,087	51.8	44.2	30.1	14.4
Fetal distress <sup>9</sup> . . . . .	158,680	62.6	60.6	11.9	16.6
<b>Obstetric procedures</b>					
Electronic fetal monitoring . . . . .	2,933,662	21.7	16.2	32.4	25.3
Induction of labor . . . . .	381,975	21.9	20.5	11.3	50.7
Stimulation of labor . . . . .	456,556	17.9	16.5	12.2	58.5
Tocolysis . . . . .	63,973	31.1	25.2	28.0	20.6
Ultrasound <sup>10</sup> . . . . .	2,000,944	26.3	18.7	37.9	19.2

<sup>1</sup>Percent of all live births that are by cesarean delivery.  
<sup>2</sup>Number of primary cesareans per 100 live births to women who have not had a previous cesarean.  
<sup>3</sup>Percent of all cesareans that are repeat cesareans.  
<sup>4</sup>Number of vaginal births after previous cesarean delivery per 100 live births to women with a previous cesarean delivery.  
<sup>5</sup>New York City (but not New York State) reports this risk factor.  
<sup>6</sup>Texas does not report this risk factor.  
<sup>7</sup>Kansas does not report this risk factor.  
<sup>8</sup>New York City (but not New York State) reports this complication.  
<sup>9</sup>Texas does not report this complication.  
<sup>10</sup>Illinois does not report this procedure.

NOTE: Excludes data for Oklahoma, which did not require reporting of method of delivery, medical risk factors, complications of labor and/or delivery, and obstetric procedures.

**Table 15. Live births by day of week and index of occurrence by method of delivery, day of week, and race of mother: Total of 49 reporting States and the District of Columbia, 1990**

Day of week and race of mother	All births	Total <sup>2</sup>	Index of occurrence <sup>1</sup>			
			Vaginal	Method of delivery		
				Total	Primary	Repeat
All races <sup>3</sup>	4,110,563	100.0	100.0	100.0	100.0	100.0
Sunday	470,912	78.9	84.9	58.6	70.2	38.9
Monday	606,619	103.6	102.2	108.3	100.0	122.4
Tuesday	635,929	108.6	106.2	116.6	112.7	123.2
Wednesday	628,024	107.2	105.2	114.2	111.2	119.4
Thursday	628,440	107.3	105.2	114.3	110.1	121.5
Friday	636,324	108.7	105.1	120.6	114.6	130.7
Saturday	504,315	86.1	91.4	68.2	81.8	45.1
White	3,252,473	100.0	100.0	100.0	100.0	100.0
Sunday	364,414	77.2	83.4	56.4	68.7	35.8
Monday	482,147	104.1	102.4	109.4	100.6	124.1
Tuesday	507,260	109.5	107.1	117.6	113.6	124.2
Wednesday	499,983	107.9	105.9	114.6	111.7	119.5
Thursday	500,285	108.0	105.8	115.2	110.8	122.5
Friday	507,180	109.5	105.7	121.7	115.1	132.7
Saturday	391,204	84.4	90.0	66.0	80.2	42.3
Black	679,236	100.0	100.0	100.0	100.0	100.0
Sunday	84,412	85.6	90.7	67.6	76.3	52.4
Monday	98,308	101.6	101.0	103.9	97.7	115.0
Tuesday	101,885	105.3	103.2	112.6	109.1	118.9
Wednesday	101,328	104.7	102.5	112.4	109.1	118.3
Thursday	101,434	104.8	103.1	110.9	107.5	116.8
Friday	102,236	105.7	102.6	116.0	112.7	121.9
Saturday	89,633	92.6	97.1	77.1	88.1	57.7

<sup>1</sup>Index is the ratio of the average number of births by a specified method of delivery on a given day of the week to the average daily number of births by a specified method of delivery for the year, multiplied by 100.

<sup>2</sup>Includes method of delivery not stated.

<sup>3</sup>Includes races other than white and black.

NOTE: Excludes data for Oklahoma, which did not require reporting of method of delivery.

**Table 16. Live births with selected abnormal conditions of the newborn and rates for selected abnormal conditions of the newborn, by age and race of mother: Total of 49 reporting States and the District of Columbia, 1990**

[Rates are number of live births with specified abnormal condition per 1,000 live births in specified group]

Abnormal condition and race of mother	All births <sup>1</sup>	Abnormal condition reported	All ages	Age of mother						Not stated	
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years		
All races <sup>2</sup>											
Anemia . . . . .	4,110,563	6,926	1.7	2.3	1.9	1.5	1.5	1.5	1.5	1.5	147,864
Birth injury <sup>3</sup> . . . . .	3,677,106	7,077	2.0	1.9	1.9	2.1	2.1	1.9	1.8	1.8	115,592
Fetal alcohol syndrome <sup>4,5</sup> . . . . .	3,875,290	524	0.1	0.1	0.1	0.1	0.2	0.2	*	*	144,105
Hyaline membrane disease/RDS . . . . .	4,110,563	23,680	6.0	7.7	6.3	5.5	5.3	5.7	5.5	5.5	147,864
Meconium aspiration syndrome <sup>5</sup> . . . . .	3,948,185	11,408	3.0	3.3	3.1	2.8	2.9	3.3	3.7	3.7	142,841
Assisted ventilation less than 30 min <sup>6</sup> . . . . .	3,812,987	46,943	12.8	13.5	12.9	12.5	12.6	12.7	14.1	14.1	140,924
Assisted ventilation 30 min or longer <sup>6</sup> . . . . .	3,812,987	26,341	7.2	9.1	7.4	6.4	6.6	7.5	8.6	8.6	140,924
Seizures . . . . .	4,110,563	3,462	0.9	1.0	0.9	0.8	0.8	0.8	1.0	1.0	147,864
White											
Anemia . . . . .	3,252,473	4,919	1.6	2.0	1.7	1.4	1.4	1.4	1.4	1.4	116,628
Birth injury <sup>3</sup> . . . . .	2,883,983	6,143	2.2	2.2	2.2	2.2	2.2	2.1	1.8	1.8	90,320
Fetal alcohol syndrome <sup>4,5</sup> . . . . .	3,046,697	292	0.1	*	0.1	0.1	0.1	0.1	*	*	113,697
Hyaline membrane disease/RDS . . . . .	3,252,473	18,626	5.9	7.9	6.3	5.6	5.2	5.7	5.4	5.4	116,628
Meconium aspiration syndrome <sup>5</sup> . . . . .	3,110,009	8,344	2.8	2.9	2.9	2.6	2.8	3.0	3.4	3.4	112,473
Assisted ventilation less than 30 min <sup>6</sup> . . . . .	3,031,747	37,749	12.9	14.0	13.1	12.6	12.7	12.8	14.3	14.3	112,033
Assisted ventilation 30 min or longer <sup>6</sup> . . . . .	3,031,747	19,953	6.8	8.9	7.0	6.2	6.3	7.1	8.3	8.3	112,033
Seizures . . . . .	3,252,473	2,514	0.8	0.9	0.8	0.8	0.8	0.8	1.0	1.0	116,628
Black											
Anemia . . . . .	679,236	1,779	2.7	3.2	2.9	2.3	2.4	2.2	*	*	26,664
Birth Injury <sup>3</sup> . . . . .	625,485	633	1.0	1.0	1.0	1.2	1.0	0.9	*	*	21,597
Fetal alcohol syndrome <sup>4,5</sup> . . . . .	655,514	173	0.3	0.2	0.1	0.3	0.4	0.6	*	*	25,903
Hyaline membrane disease/RDS . . . . .	679,236	4,482	6.9	7.6	6.5	6.4	7.1	7.2	5.8	5.8	26,664
Meconium aspiration syndrome <sup>5</sup> . . . . .	662,688	2,568	4.0	4.1	3.9	3.8	3.9	5.4	5.4	5.4	25,883
Assisted ventilation less than 30 min <sup>6</sup> . . . . .	615,921	7,199	12.2	11.8	12.1	12.2	12.6	12.8	14.1	14.1	24,364
Assisted ventilation 30 min or longer <sup>6</sup> . . . . .	615,921	5,549	9.4	9.7	9.1	8.8	9.7	11.3	11.7	11.7	24,364
Seizures . . . . .	679,236	813	1.2	1.2	1.1	1.4	1.3	1.2	*	*	26,664

<sup>1</sup>Total number of births to residents or areas reporting specified condition.

<sup>2</sup>Includes races other than white and black.

<sup>3</sup>Massachusetts and Texas do not report this condition.

<sup>4</sup>Wisconsin does not report this condition.

<sup>5</sup>New York City (but not New York State) reports this condition.

<sup>6</sup>New York State and New York City do not report this condition.

NOTE: Excludes data for Oklahoma, which did not require reporting of abnormal conditions of the newborn.

**Table 17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1990**

[Rates are number of live births with specified congenital anomaly per 100,000 live births in specified group]

Congenital anomaly and race of mother	All births <sup>1</sup>	Congenital anomaly reported	All ages	Age of mother							Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years		
<b>All races<sup>2</sup></b>											
	Number			Rate							Number
Anencephalus . . . . .	3,785,585	634	17.5	20.5	20.4	16.3	15.4	11.0	*	154,333	
Spina bifida/Meningocele . . . . .	3,785,585	938	25.8	24.0	28.5	25.8	25.4	21.0	*	154,333	
Hydrocephalus . . . . .	3,785,585	1,090	30.0	37.8	32.1	27.0	26.7	29.1	*	154,333	
Microcephalus . . . . .	3,785,585	354	9.7	14.6	9.7	8.2	8.9	10.3	*	154,333	
Other central nervous system anomalies . . . . .	3,785,585	942	25.9	28.3	28.3	25.6	22.6	22.5	*	154,333	
Heart malformations . . . . .	3,785,585	4,676	128.8	119.8	124.3	129.5	131.7	136.6	209.4	154,333	
Other circulatory/respiratory anomalies . . . . .	3,785,585	4,995	137.6	142.8	136.0	135.3	131.6	152.1	188.2	154,333	
Rectal atresia/stenosis . . . . .	3,785,585	388	10.7	12.4	9.6	11.9	9.6	9.6	*	154,333	
Tracheo-esophageal fistula/Esophageal atresia . . . . .	3,785,585	574	15.8	18.3	14.9	12.7	17.9	18.0	*	154,333	
Omphalocele/Gastroschlsis . . . . .	3,785,585	874	24.1	46.6	29.9	17.3	14.9	16.6	*	154,333	
Other gastrointestinal anomalies . . . . .	3,785,585	1,334	36.7	41.5	39.7	34.6	35.1	30.2	*	154,333	
Malformed genitalia . . . . .	3,785,585	2,936	80.9	79.5	82.0	80.9	79.6	76.2	120.0	154,333	
Renal agenesis . . . . .	3,785,585	328	9.0	9.5	9.9	8.6	8.8	7.7	*	154,333	
Other urogenital anomalies . . . . .	3,785,585	4,818	132.7	131.4	132.3	127.9	142.8	128.1	129.4	154,333	
Cleft lip/palate . . . . .	3,785,585	3,190	87.8	83.7	90.0	84.1	88.5	100.5	89.4	154,333	
Polydactyly/Syndactyly/Adactyly . . . . .	3,785,585	3,280	90.3	121.9	97.7	83.8	77.9	68.5	105.9	154,333	
Club foot <sup>3</sup> . . . . .	3,785,585	2,616	72.0	79.9	75.2	70.5	65.6	73.3	61.2	154,333	
Diaphragmatic hernia <sup>3</sup> . . . . .	3,785,585	621	17.1	20.5	14.8	18.1	15.6	19.9	*	154,333	
Other musculoskeletal/integumental anomalies <sup>3</sup> . . . . .	3,785,585	7,672	211.3	210.7	200.4	208.0	222.9	229.0	225.9	154,333	
Down's syndrome . . . . .	3,785,585	1,977	54.4	36.7	37.7	39.9	63.0	123.3	421.2	154,333	
Other chromosomal anomalies . . . . .	3,785,585	1,604	44.2	37.8	42.0	39.5	46.2	63.7	127.1	154,333	
<b>White</b>											
Anencephalus . . . . .	3,009,144	505	17.5	21.2	20.8	16.1	15.0	11.5	*	120,168	
Spina bifida/Meningocele . . . . .	3,009,144	800	27.7	27.4	30.8	27.7	25.9	22.2	*	120,168	
Hydrocephalus . . . . .	3,009,144	858	29.7	35.6	32.9	27.7	25.9	28.4	*	120,168	
Microcephalus . . . . .	3,009,144	272	9.4	12.8	9.7	7.7	9.4	10.7	*	120,168	
Other central nervous system anomalies . . . . .	3,009,144	760	26.3	28.4	29.3	24.9	24.5	22.7	*	120,168	
Heart malformations . . . . .	3,009,144	3,768	130.4	121.7	123.8	131.2	133.2	140.4	217.6	120,168	
Other circulatory/respiratory anomalies . . . . .	3,009,144	4,068	140.8	151.0	141.7	136.6	132.4	157.7	185.7	120,168	
Rectal atresia/stenosis . . . . .	3,009,144	331	11.5	15.0	10.6	12.3	9.8	10.2	*	120,168	
Tracheo-esophageal fistula/Esophageal atresia . . . . .	3,009,144	495	17.1	20.0	16.9	13.2	19.6	19.5	*	120,168	
Omphalocele/Gastroschsis . . . . .	3,009,144	694	24.0	53.3	30.8	17.1	14.3	15.5	*	120,168	
Other gastrointestinal anomalies . . . . .	3,009,144	1,083	37.5	45.2	41.3	34.3	35.7	30.6	*	120,168	
Malformed genitalia . . . . .	3,009,144	2,526	87.4	88.9	90.7	85.2	85.6	81.3	136.3	120,168	
Renal agenesis . . . . .	3,009,144	282	9.8	11.2	11.0	9.0	9.2	*	*	120,168	
Other urogenital anomalies . . . . .	3,009,144	4,230	146.4	153.2	145.4	141.5	155.2	136.8	136.3	120,168	
Cleft lip/palate . . . . .	3,009,144	2,789	96.5	103.6	103.4	89.6	93.6	100.4	98.6	120,168	
Polydactyly/Syndactyly/Adactyly . . . . .	3,009,144	1,869	64.7	74.9	66.7	63.6	61.4	56.0	75.4	120,168	
Club foot <sup>3</sup> . . . . .	3,009,144	2,269	78.5	95.1	84.2	74.9	69.6	77.7	72.5	120,168	
Diaphragmatic hernia <sup>3</sup> . . . . .	3,009,144	537	18.6	25.3	16.1	19.3	17.0	19.1	*	120,168	
Other musculoskeletal/integumental anomalies <sup>3</sup> . . . . .	3,009,144	6,122	211.9	203.7	201.5	208.3	226.7	227.9	229.2	120,168	
Down's syndrome . . . . .	3,009,144	1,656	57.3	36.8	40.6	41.4	66.1	126.1	423.5	120,168	
Other chromosomal anomalies . . . . .	3,009,144	1,309	45.3	39.3	43.4	40.3	46.9	63.5	127.6	120,168	

See footnotes at end of table.

**Table 17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1990—Con.**

[Rates are number of live births with specified congenital anomaly per 100,000 live births in specified group]

Congenital anomaly and race of mother	All births <sup>1</sup>	Congenital anomaly reported	All ages	Age of mother						Not stated
				Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–49 years	
				Rate						
<b>Black</b>				Rate						<b>Number</b>
Anencephalus . . . . .	615,384	101	17.2	17.2	17.0	16.9	*	*	*	28,782
Spina bifida/Meningocele . . . . .	615,384	120	20.5	17.2	23.3	18.3	24.2	*	*	28,782
Hydrocephalus . . . . .	615,384	189	32.2	42.2	29.7	21.8	35.2	*	*	28,782
Microcephalus . . . . .	615,384	64	10.9	17.2	*	*	*	*	*	28,782
Other central nervous system anomalies . . . . .	615,384	144	24.5	26.4	23.3	31.0	*	*	*	28,782
Heart malformations . . . . .	615,384	725	123.6	112.9	128.3	126.1	122.4	120.6	*	28,782
Other circulatory/respiratory anomalies . . . . .	615,384	708	120.7	123.7	114.0	123.3	120.0	127.5	*	28,782
Rectal atresia/stenosis . . . . .	615,384	40	6.8	*	*	*	*	*	*	28,782
Tracheo-esophageal fistula/Esophageal atresia . . . . .	615,384	62	10.6	*	*	*	*	*	*	28,782
Omphalocele/Gastroschisis . . . . .	615,384	154	26.3	30.7	29.2	21.8	*	*	*	28,782
Other gastrointestinal anomalies . . . . .	615,384	212	36.1	35.0	36.6	38.0	35.2	*	*	28,782
Malformed genitalia . . . . .	615,384	334	56.9	62.9	55.1	60.6	48.5	*	*	28,782
Renal agenesis . . . . .	615,384	37	6.3	*	*	*	*	*	*	28,782
Other urogenital anomalies . . . . .	615,384	448	76.4	82.2	83.2	57.1	81.2	82.7	*	28,782
Cleft lip/palate . . . . .	615,384	246	41.9	37.2	36.0	44.4	41.2	96.5	*	28,782
Polydactyly/Syndactyly/Adactyly . . . . .	615,384	1,313	223.8	233.8	222.1	225.4	217.0	172.3	*	28,782
Club foot <sup>3</sup> . . . . .	615,384	279	47.6	46.5	44.5	50.0	50.9	*	*	28,782
Diaphragmatic hernia <sup>3</sup> . . . . .	615,384	64	10.9	*	*	*	*	*	*	28,782
Other musculoskeletal/integumental anomalies <sup>3</sup> . . . . .	615,384	1,195	203.7	222.3	191.4	197.9	201.2	224.0	*	28,782
Down's syndrome . . . . .	615,384	248	42.3	37.2	29.2	31.0	47.3	120.6	501.7	28,782
Other chromosomal anomalies . . . . .	615,384	238	40.6	35.7	38.2	39.4	41.2	*	*	28,782

<sup>1</sup>Total number of births to residents of areas reporting specified congenital anomaly.

<sup>2</sup>Includes races other than white and black.

<sup>3</sup>Figures shown for the number of congenital anomalies reported and rates are in error; see Technical Notes.

NOTE: Excludes data for New Mexico, New York, and Oklahoma, which did not require reporting of congenital anomalies.

## Technical notes

### Source of data

Data shown in this report are based on 100 percent of the birth certificates in all States and the District of Columbia. The data are provided to the National Center for Health Statistics through the Vital Statistics Cooperative Program. Information in this report on selected maternal and infant health characteristics was derived from items on the 1989 revision of the U.S. Standard Certificate of Live Birth, shown in figure 1.

### Race of mother

Birth data are tabulated by the race of the mother as reported directly on the birth certificate. If race of mother was not stated, it was imputed as that of the father, if known. If neither race was stated, race of mother was imputed as the race of the mother on the preceding record with known race.

### Definitions of medical terms

The following definitions are adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics officials for the Association for Vital Records and Health Statistics (41).

### Medical risk factors for this pregnancy

**Anemia**—Hemoglobin level of less than 10.0 g/dL during pregnancy, or a hematocrit of less than 30 percent during pregnancy.

**Cardiac disease**—Disease of the heart.

**Acute or chronic lung disease**—Disease of the lungs during pregnancy.

**Diabetes**—Metabolic disorder characterized by excessive discharge of urine and persistent thirst; includes juvenile onset, adult onset, and gestational diabetes during pregnancy.

**Genital herpes**—Infection of the skin of the genital area by herpes simplex virus.

**Hydramnios/Oligohydramnios**—Any noticeable excess (hydramnios) or

lack (oligohydramnios) of amniotic fluid.

**Hemoglobinopathy**—A blood disorder caused by alteration in the genetically determined molecular structure of hemoglobin (for example, sickle cell anemia).

**Hypertension, chronic**—Blood pressure persistently greater than 140/90, diagnosed prior to onset of pregnancy or before the 20th week of gestation.

**Hypertension, pregnancy-associated**—An increase in blood pressure of at least 30 mm hg systolic or 15 mm hg diastolic on two measurements taken 6 hours apart after the 20th week of gestation.

**Eclampsia**—The occurrence of convulsions and/or coma unrelated to other cerebral conditions in women with signs and symptoms of preeclampsia.

**Incompetent cervix**—Characterized by painless dilation of the cervix in the second trimester or early in the third trimester of pregnancy, with premature expulsion of membranes through the cervix and ballooning of the membranes into the vagina, followed by rupture of the membranes and subsequent expulsion of the fetus.

**Previous infant 4,000+ grams**—The birthweight of a previous live-born child was over 4,000 grams (8 lbs 14 oz).

**Previous preterm or small-for-gestational-age infant**—Previous birth of an infant prior to term (before 37 completed weeks of gestation) or of an infant weighing less than the 10th percentile for gestational age using a standard weight for age chart.

**Renal disease**—Kidney disease.

**Rh Sensitization**—The process or state of becoming sensitized to the Rh factor as when an Rh-negative woman is pregnant with an Rh-positive fetus.

**Uterine bleeding**—Any clinically significant bleeding during the pregnancy taking into consideration the stage of pregnancy; any second or third trimester bleeding of the uterus prior to the onset of labor.

### Obstetric procedures

**Amniocentesis**—Surgical trans-abdominal perforation of the uterus to obtain amniotic fluid to be used in the

detection of genetic disorders, fetal abnormalities, and fetal lung maturity.

**Electronic fetal monitoring**—Monitoring with external devices applied to the maternal abdomen or with internal devices with an electrode attached to the fetal scalp and a catheter through the cervix into the uterus, to detect and record fetal heart tones and uterine contractions.

**Induction of labor**—The initiation of uterine contractions before the spontaneous onset of labor by medical and/or surgical means for the purpose of delivery.

**Stimulation of labor**—Augmentation of previously established labor by use of oxytocin.

**Tocolysis**—Use of medications to inhibit preterm uterine contractions to extend the length of pregnancy and, therefore, avoid a preterm birth.

**Ultrasound**—Visualization of the fetus and the placenta by means of sound waves.

### Complications of labor and/or delivery

**Febrile**—A fever greater than 100 degrees F. or 38 C. occurring during labor and/or delivery.

**Meconium, moderate/heavy**—Meconium consists of undigested debris from swallowed amniotic fluid, various products of secretion, excretion and shedding by the gastrointestinal tract; moderate to heavy amounts of meconium in the amniotic fluid noted during labor and/or delivery.

**Premature rupture of membranes (more than 12 hours)**—Rupture of the membranes at any time during pregnancy and more than 12 hours before the onset of labor.

**Abruptio placenta**—Premature separation of a normally implanted placenta from the uterus.

**Placenta previa**—Implantation of the placenta over or near the internal opening of the cervix.

**Other excessive bleeding**—The loss of a significant amount of blood from conditions other than abruptio placenta or placenta previa.

**Seizures during labor**—Maternal seizures occurring during labor from any cause.

<p><b>38a. MEDICAL RISK FACTORS FOR THIS PREGNANCY</b> (Check all that apply)</p> <p>Anemia (Hct. &lt;30/Hgb. &lt;10) ..... 01 <input type="checkbox"/></p> <p>Cardiac disease ..... 02 <input type="checkbox"/></p> <p>Acute or chronic lung disease ..... 03 <input type="checkbox"/></p> <p>Diabetes ..... 04 <input type="checkbox"/></p> <p>Genital herpes ..... 05 <input type="checkbox"/></p> <p>Hydramnios/Oligohydramnios ..... 06 <input type="checkbox"/></p> <p>Hemoglobinopathy ..... 07 <input type="checkbox"/></p> <p>Hypertension, chronic ..... 08 <input type="checkbox"/></p> <p>Hypertension, pregnancy-associated ..... 09 <input type="checkbox"/></p> <p>Eclampsia ..... 10 <input type="checkbox"/></p> <p>Incompetent cervix ..... 11 <input type="checkbox"/></p> <p>Previous infant 4000+ grams ..... 12 <input type="checkbox"/></p> <p>Previous preterm or small-for-gestational-age infant ..... 13 <input type="checkbox"/></p> <p>Renal disease ..... 14 <input type="checkbox"/></p> <p>Rh sensitization ..... 15 <input type="checkbox"/></p> <p>Uterine bleeding ..... 16 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 17 <input type="checkbox"/></p> <p>(Specify)</p>	<p><b>40. COMPLICATIONS OF LABOR AND/OR DELIVERY</b> (Check all that apply)</p> <p>Foetus (&gt;100°F. or 38°C.) ..... 01 <input type="checkbox"/></p> <p>Meconium, moderate/heavy ..... 02 <input type="checkbox"/></p> <p>Premature rupture of membrane (&gt;12 hours) ..... 03 <input type="checkbox"/></p> <p>Abruptio placenta ..... 04 <input type="checkbox"/></p> <p>Placenta previa ..... 05 <input type="checkbox"/></p> <p>Other excessive bleeding ..... 06 <input type="checkbox"/></p> <p>Seizures during labor ..... 07 <input type="checkbox"/></p> <p>Precipitous labor (&lt;3 hours) ..... 08 <input type="checkbox"/></p> <p>Prolonged labor (&gt;20 hours) ..... 09 <input type="checkbox"/></p> <p>Dysfunctional labor ..... 10 <input type="checkbox"/></p> <p>Breech/Malpresentation ..... 11 <input type="checkbox"/></p> <p>Cephalopelvic disproportion ..... 12 <input type="checkbox"/></p> <p>Cord prolapse ..... 13 <input type="checkbox"/></p> <p>Anesthetic complications ..... 14 <input type="checkbox"/></p> <p>Fetal distress ..... 15 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 16 <input type="checkbox"/></p> <p>(Specify)</p>	<p><b>43. CONGENITAL ANOMALIES OF CHILD</b> (Check all that apply)</p> <p>Anencephalus ..... 01 <input type="checkbox"/></p> <p>Spina bifida/Meningocele ..... 02 <input type="checkbox"/></p> <p>Hydrocephalus ..... 03 <input type="checkbox"/></p> <p>Microcephalus ..... 04 <input type="checkbox"/></p> <p>Other central nervous system anomalies (Specify) ..... 05 <input type="checkbox"/></p> <p>Heart malformations ..... 06 <input type="checkbox"/></p> <p>Other circulatory/respiratory anomalies (Specify) ..... 07 <input type="checkbox"/></p> <p>Rectal atresia/stenosis ..... 08 <input type="checkbox"/></p> <p>Tracheo-esophageal fistula/ Esophageal atresia ..... 09 <input type="checkbox"/></p> <p>Omphalocele/ Gastroschisis ..... 10 <input type="checkbox"/></p> <p>Other gastrointestinal anomalies (Specify) ..... 11 <input type="checkbox"/></p> <p>Malformed genitalia ..... 12 <input type="checkbox"/></p> <p>Renal agenesis ..... 13 <input type="checkbox"/></p> <p>Other urogenital anomalies (Specify) ..... 14 <input type="checkbox"/></p> <p>Cleft lip/palate ..... 15 <input type="checkbox"/></p> <p>Polydactyly/Syndactyly/Adactyly ..... 16 <input type="checkbox"/></p> <p>Club foot ..... 17 <input type="checkbox"/></p> <p>Diaphragmatic hernia ..... 18 <input type="checkbox"/></p> <p>Other musculoskeletal/integumental anomalies (Specify) ..... 19 <input type="checkbox"/></p> <p>Down's syndrome ..... 20 <input type="checkbox"/></p> <p>Other chromosomal anomalies (Specify) ..... 21 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 22 <input type="checkbox"/></p> <p>(Specify)</p>
<p><b>38b. OTHER RISK FACTORS FOR THIS PREGNANCY</b> (Complete all items)</p> <p>Tobacco use during pregnancy ..... Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Average number cigarettes per day _____</p> <p>Alcohol use during pregnancy ..... Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Average number drinks per week _____</p> <p>Weight gained during pregnancy _____ lbs.</p>	<p><b>41. METHOD OF DELIVERY</b> (Check all that apply)</p> <p>Vaginal ..... 01 <input type="checkbox"/></p> <p>Vaginal birth after previous C-section ..... 02 <input type="checkbox"/></p> <p>Primary C-section ..... 03 <input type="checkbox"/></p> <p>Repeat C-section ..... 04 <input type="checkbox"/></p> <p>Forceps ..... 05 <input type="checkbox"/></p> <p>Vacuum ..... 06 <input type="checkbox"/></p>	<p><b>42. ABNORMAL CONDITIONS OF THE NEWBORN</b> (Check all that apply)</p> <p>Anemia (Hct. &lt;39/Hgb. &lt;13) ..... 01 <input type="checkbox"/></p> <p>Birth injury ..... 02 <input type="checkbox"/></p> <p>Fetal alcohol syndrome ..... 03 <input type="checkbox"/></p> <p>Hyaline membrane disease/RDS ..... 04 <input type="checkbox"/></p> <p>Meconium aspiration syndrome ..... 05 <input type="checkbox"/></p> <p>Assisted ventilation &lt;30 min ..... 06 <input type="checkbox"/></p> <p>Assisted ventilation ≥30 min ..... 07 <input type="checkbox"/></p> <p>Seizures ..... 08 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 09 <input type="checkbox"/></p> <p>(Specify)</p>
<p><b>39. OBSTETRIC PROCEDURES</b> (Check all that apply)</p> <p>Amniocentesis ..... 01 <input type="checkbox"/></p> <p>Electronic fetal monitoring ..... 02 <input type="checkbox"/></p> <p>Induction of labor ..... 03 <input type="checkbox"/></p> <p>Stimulation of labor ..... 04 <input type="checkbox"/></p> <p>Tocolysis ..... 05 <input type="checkbox"/></p> <p>Ultrasound ..... 06 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 07 <input type="checkbox"/></p> <p>(Specify)</p>		

Figure 1. New maternal and infant health items from the 1989 revision of the U.S. Standard Certificate of Live Birth

*Precipitous labor (less than 3 hours)*—Extremely rapid labor and delivery lasting less than 3 hours.

*Prolonged labor (more than 20 hours)*—Abnormally slow progress of labor lasting more than 20 hours.

*Dysfunctional labor*—Failure to progress in a normal pattern of labor.

*Breech/Malpresentation*—At birth, the presentation of the fetal buttocks rather than the head, or other malpresentation.

*Cephalopelvic disproportion*—The relationship of the size, presentation and position of the fetal head to the maternal pelvis, which prevents dilation of the cervix and/or descent of the fetal head.

*Cord prolapse*—Premature expulsion of the umbilical cord in labor before the fetus is delivered.

*Anesthetic complications*—Any complication during labor and/or delivery brought on by an anesthetic agent or agents.

*Fetal distress*—Signs indicating fetal hypoxia (deficiency in amount of oxygen reaching fetal tissues).

**Abnormal conditions of the newborn**

*Anemia*—Hemoglobin level of less than 13.0 g/dL or a hematocrit of less than 39 percent.

*Birth injury*—Impairment of the infant's body function or structure due to adverse influences that occurred at birth.

*Fetal alcohol syndrome*—A syndrome of altered prenatal growth and development occurring in infants born of women who consumed excessive amounts of alcohol during pregnancy.

*Hyaline membrane disease/RDS*—A disorder primarily of prematurity, manifested clinically by respiratory distress and pathologically by pulmonary hyaline membranes and incomplete expansion of the lungs at birth.

*Meconium aspiration syndrome*—Aspiration of meconium by the fetus or newborn, affecting the lower respiratory system.

*Assisted ventilation (less than 30 minutes)*—A mechanical method of assisting respiration for newborns with respiratory failure.

*Assisted ventilation (30 minutes or more)*—Newborn placed on assisted ventilation for 30 minutes or longer.

*Seizures*—A seizure of any etiology.

**Congenital anomalies of child**

*Anencephalus*—Absence of the cerebral hemispheres.

*Spina bifida/meningocele*—Developmental anomaly characterized by defective closure of the bony encasement of the spinal cord, through which the cord and meninges may or may not protrude.

*Hydrocephalus*—Excessive accumulation of cerebrospinal fluid within the

ventricles of the brain with consequent enlargement of the cranium.

*Microcephalus*—A significantly small head.

*Other central nervous system anomalies*—Other specified anomalies of the brain, spinal cord, and nervous system.

*Heart malformations*—Congenital anomalies of the heart.

*Other circulatory/respiratory anomalies*—Other specified anomalies of the circulatory and respiratory systems.

*Rectal atresia/stenosis*—Congenital absence, closure, or narrowing of the rectum.

*Tracheo-esophageal fistula/Esophageal atresia*—An abnormal passage between the trachea and the esophagus; esophageal atresia is the congenital absence or closure of the esophagus.

*Omphalocele/Gastroschisis*—An omphalocele is a protrusion of variable amounts of abdominal viscera from a midline defect at the base of the umbilicus. In gastroschisis, the abdominal viscera protrude through an abdominal wall defect, usually on the right side of the umbilical cord insertion.

*Other gastrointestinal anomalies*—Other specified congenital anomalies of the gastrointestinal system.

*Malformed genitalia*—Congenital anomalies of the reproductive organs.

*Renal agenesis*—One or both kidneys are completely absent.

*Other urogenital anomalies*—Other specified congenital anomalies of the organs concerned in the production and excretion of urine, together with organs of reproduction.

*Cleft lip/palate*—Cleft lip is a fissure or elongated opening of the lip; cleft palate is a fissure in the roof of the mouth. These are failures of embryonic development.

*Polydactyly/Syndactyly/Adactyly*—Polydactyly is the presence of more than five digits on either hands and/or feet; syndactyly is having fused or webbed fingers and/or toes; adactyly is the absence of fingers and/or toes.

**Table A. Corrected numbers and rates for club foot, diaphragmatic hernia, and other musculoskeletal/integumental anomalies, 1990**

	All races		White		Black	
	Number reported	Rate <sup>1</sup>	Number reported	Rate <sup>1</sup>	Number reported	Rate <sup>1</sup>
Club foot . . . . .	2,277	62.7	1,986	68.7	231	39.4
Diaphragmatic hernia . . . . .	514	14.2	427	14.8	65	11.1
Other musculoskeletal/integumental anomalies . . .	8,118	223.6	6,515	225.5	1,242	211.7

<sup>1</sup>Rate per 100,000 total live births

*Club foot*—Deformities of the foot, which is twisted out of shape or position.

*Diaphragmatic hernia*—Herniation of the abdominal contents through the diaphragm into the thoracic cavity usually resulting in respiratory distress.

*Other musculoskeletal/integumental anomalies*—Other specified congenital anomalies of the muscles, skeleton, or skin.

*Down's syndrome*—The most common chromosomal defect with most cases resulting from an extra chromosome (trisomy 21).

*Other chromosomal anomalies*—All other chromosomal aberrations.

**Method of delivery**

Several rates are computed for method of delivery. The overall cesarean section rate or *total cesarean* rate is computed as the percent of all births that were delivered by cesarean section. The *primary cesarean* rate is a measure that relates the number of women having a primary cesarean delivery to all women giving birth who have never had a cesarean delivery. The denominator for this rate includes all births less those with method of delivery classified as repeat cesarean, vaginal birth after previous cesarean, or method not stated. The *repeat cesarean* rate is the percent of all cesarean deliveries that were to women having their second (or subsequent) cesarean delivery. The rate for *vaginal birth after previous cesarean* (VBAC) delivery is computed by relating all VBAC deliveries to the sum of VBAC and repeat cesarean deliv-

eries, that is, to women with a previous cesarean section.

**Congenital anomalies**

Because of a processing error for births occurring in Texas, the number of club foot, diaphragmatic hernia, and other musculoskeletal/integumental anomalies shown in table 17 are incorrect. The correct numbers and rates for these anomalies for all ages combined are shown in table A.

**Computation of percent, percent distributions, and medians**

Births with unknown medical and life-style risk factors of pregnancy and birth, obstetric procedures, abnormal conditions and congenital anomalies of infant, and method of delivery were subtracted from the figures for total births that were used as denominators before percents, percent distributions, and medians were computed. Computations of median weight gain were based on ungrouped data. An asterisk is shown in place of any derived statistic based on fewer than 20 births in the numerator or denominator.

**Random variation**

Although the birth data in this report are not subject to sampling error, they may be affected by random variation in the number of births involved. Many of the checkbox items refer to extremely rare events. When the number of events is small, perhaps less than 100, and the probability of such an event is small, considerable caution must be observed in interpreting the data.

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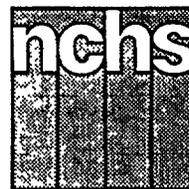
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**National Center for Health Statistics**

Director  
Manning Feinleib, M.D., Dr. P.H.  
Acting Deputy Director  
Jack R. Anderson

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# Monthly Vital Statistics Report



Final Data From the National Center for Health Statistics

## Advance Report of New Data From the 1989 Birth Certificate

### Contents

Introduction.....	1
Medical risk factors.....	2
Tobacco use.....	2
Alcohol use.....	4
Maternal weight gain.....	5
Obstetric procedures.....	5
Complications of labor and/or delivery.....	6
Method of delivery.....	6
Abnormal conditions of newborn.....	7
Congenital anomalies.....	8
References.....	8
List of tables.....	10
Technical notes.....	29

birth, obstetric procedures performed, method of delivery, abnormal conditions and congenital anomalies of the infant, expanded information on birth attendant and place of delivery, and questions on the Hispanic origin of the parents. This major enhancement of medical and health data available for mothers and babies greatly expands the scope of information on pregnancy outcome in the United States (1).

New information relating to the attendant at birth, place of delivery, and the Hispanic origin of the mother was published in an earlier report (2). This report includes summary and analytic tabulations of the other new items mentioned.

The 1989 revision represents a significant departure from previous versions of the birth certificate in content and in format. The most noteworthy change in format is the use of checkboxes to obtain the detailed medical and health information about the mother and child. Previous versions included a number of open-ended questions on these topics that were poorly

completed and difficult to compile. Checkboxes are believed to encourage better reporting of the specific factors, conditions, and procedures listed.

Although some States revised their certificates in 1988, the new certificates were implemented effective with the 1989 data year. Since much of this information is being reported for the first time, reporting completeness may not be at the same high level as for items on previous revisions of the certificates. An indication of reporting completeness is given in the text and in each table, showing the number of births for which the requested information was not stated. Another factor contributing to the incidence of incomplete reporting is that the revised certificates for four States were not implemented until March or April 1989. The District of Columbia and Rhode Island revised their certificates as of March 1, and Texas and Virginia, as of April 1. As a consequence, data on the new topics are not available for births occurring in the first few months of 1989 in those States.

### Introduction

The 1989 revision of the U.S. Standard Certificate of Live Birth includes a number of new items on medical and life-style risk factors of pregnancy and

### Acknowledgments

This report was prepared in the Division of Vital Statistics. Stephanie J. Ventura wrote the report under the supervision of Robert L. Heuser, Chief of the Natality, Marriage, and Divorce Statistics Branch. Joyce Arbertha provided statistical tables and Thomas Dunn provided content review. Virginia Brainard provided computer programming support. The Registration Methods Branch and the Technical Services Branch provided consultation to State vital statistics offices regarding collection of the birth certificate data on which this report is based. This report was edited by Arlett Brown and typeset by Zung T.N. Le of the Publications Branch, Division of Data Services.



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control  
National Center for Health Statistics  
Manning Feinleib, M.D., Dr. P.H., Director



Except for maternal weight gain, the percent of records not reporting any given item did not exceed 8 percent in 1989. The four States implementing revised certificates in March or April 1989 accounted for about half the records with missing information. That is, for those States with revised certificates in effect the entire data year, the proportion of records with missing information was 4 percent or less in most cases.

There are five specific items that provide detailed medical and health information on the mother and child in the form of checkbox entries—medical risk factors for this pregnancy, obstetric procedures, complications of labor and/or delivery, abnormal conditions of the newborn, and congenital anomalies of the child. In 1989, 47 States and the District of Columbia reported the first four items; and as indicated in the tables, 45 States and the District of Columbia reported congenital anomalies. However, some States reporting a given item did not include every checkbox in their list for that item. As a consequence, the total number of births in the areas reporting each factor or condition and the number of births for which the information is not stated will vary to reflect the differing number of States reporting the specific factor or condition.

The format is identical for each table presenting data for these five specific items. The total number of births occurring in the areas reporting the specific factor is shown, followed by the number of births with the specified factor or condition; then rates of occurrence of each factor are shown by age of mother. Except for congenital anomalies, rates are expressed as the number of births with the specified factor per 1,000 total live births in the specified group; rates for congenital anomalies are expressed per 100,000 total live births. The last column shows the number of births for which the information was not reported. Brief medical definitions for each of the factors are presented in the "Technical notes."

The items are discussed in this report in the order in which they are presented on the birth certificate (figure 1). All

data are shown by race of mother. For ease in writing, the terms "mothers" and "women" are used interchangeably for "births" or "infants," for example, "births to black mothers" or "black infants."

### Medical risk factors

Analysis of certain medical risk factors can help account for poor pregnancy outcome, in particular, low birth weight (weight of less than 2,500 grams or 5 lb 8 oz). Also, the presence of certain conditions can influence obstetric and delivery procedures; for example, hypertension and anemia are known to be related to an elevated cesarean delivery rate (3). Data on 16 selected medical risk factors reported for births occurring in 47 States and the District of Columbia in 1989 are shown in table 1. Data were not available for Louisiana, Nebraska, and Oklahoma. The presence or absence of medical risk factors was not reported for about 6 percent of births in the reporting areas.

Anemia, diabetes, and pregnancy-associated hypertension were the most frequently reported medical risk factors, with rates ranging from 19.1 to 28.2 per 1,000 live births. Anemia rates were highest for mothers under 25 years of age, and pregnancy-associated hypertension rates were highest for teenagers and for mothers in their forties. Rates for pregnancy-associated hypertension were lowest for women aged 25–34 years. Acute or chronic lung disease, hydramnios, hemoglobinopathy, eclampsia, and renal disease were other factors with similar patterns of occurrence by age.

The incidence of diabetes was directly associated with age of mother, with rates rising sharply from the youngest to the oldest mothers, from 7.4 to 64.5 per 1,000. Cardiac disease, chronic hypertension, incompetent cervix, previous infant weighing 4,000 grams (8 lb 14 oz) or more, previous small-for-gestational age (SGA) infant, and uterine bleeding had a pattern of occurrence by age of mother that was similar to that of diabetes.

The rates of occurrence of many risk factors were relatively similar for white and for black mothers, but there

were some important variations. Anemia was reported at more than twice the rate for black mothers as for white mothers (36.3 compared with 15.4), and the rate of chronic hypertension was nearly twice as high for black women as for white women (12.0 compared with 6.5). Acute or chronic lung disease, hemoglobinopathy, eclampsia, and previous SGA infant were also reported more frequently for black women than for white women. In contrast, white mothers were much more likely than were black mothers to have had a previous infant weighing 4,000 grams or more (13.1 compared with 4.8) and to have had Rh sensitization and uterine bleeding. Although anemia rates varied in a U-shaped pattern for white mothers, they declined with age for black mothers.

Several of the medical risk factors are associated with a sharply elevated risk of low birth weight (20 percent or more), including hydramnios, eclampsia, incompetent cervix, previous SGA infant, and uterine bleeding. (Data are not shown in this report.) Rates of preterm birth (gestation of less than 37 completed weeks) are also very high for mothers with anemia, pregnancy-associated hypertension, and previous SGA infant. Diabetes, in contrast, is often associated with a higher-than-average birth weight. In 1989, 18 percent of infants born to diabetic mothers weighed 4,000 grams or more compared with 11 percent of all infants born in that year.

### Tobacco use during pregnancy

Tobacco use during pregnancy has long been associated with an elevated risk of a low-birth-weight outcome (4,5), intrauterine growth retardation, and preterm birth. Low birth weight is one of the major predictors of infant morbidity and infant and childhood mortality. One recent study focusing on low-income women found that infants born to mothers who smoked during pregnancy were 74 percent more likely to be of low birth weight than were infants born to mothers who did not smoke (6). An earlier study estimated that fetal and infant deaths could be reduced by 10 percent if preg-

<p><b>38a. MEDICAL RISK FACTORS FOR THIS PREGNANCY</b> <i>(Check all that apply)</i></p> <p>Anemia (Hct. &lt;30/Hgb. &lt;10) ..... 01 <input type="checkbox"/></p> <p>Cardiac disease ..... 02 <input type="checkbox"/></p> <p>Acute or chronic lung disease ..... 03 <input type="checkbox"/></p> <p>Diabetes ..... 04 <input type="checkbox"/></p> <p>Genital herpes ..... 05 <input type="checkbox"/></p> <p>Hydramnios/Oligohydramnios ..... 06 <input type="checkbox"/></p> <p>Hemoglobinopathy ..... 07 <input type="checkbox"/></p> <p>Hypertension, chronic ..... 08 <input type="checkbox"/></p> <p>Hypertension, pregnancy-associated ..... 09 <input type="checkbox"/></p> <p>Eclampsia ..... 10 <input type="checkbox"/></p> <p>Incompetent cervix ..... 11 <input type="checkbox"/></p> <p>Previous infant 4000+ grams ..... 12 <input type="checkbox"/></p> <p>Previous preterm or small-for-gestational-age infant ..... 13 <input type="checkbox"/></p> <p>Renal disease ..... 14 <input type="checkbox"/></p> <p>Rh sensitization ..... 15 <input type="checkbox"/></p> <p>Uterine bleeding ..... 16 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 17 <input type="checkbox"/></p> <p style="text-align: center;"><i>(Specify)</i></p>	<p><b>40. COMPLICATIONS OF LABOR AND/OR DELIVERY</b> <i>(Check all that apply)</i></p> <p>Febrile (&gt;100°F. or 38°C.) ..... 01 <input type="checkbox"/></p> <p>Meconium, moderate/heavy ..... 02 <input type="checkbox"/></p> <p>Premature rupture of membrane (&gt;12 hours) ..... 03 <input type="checkbox"/></p> <p>Abruptio placenta ..... 04 <input type="checkbox"/></p> <p>Placenta previa ..... 05 <input type="checkbox"/></p> <p>Other excessive bleeding ..... 06 <input type="checkbox"/></p> <p>Seizures during labor ..... 07 <input type="checkbox"/></p> <p>Precipitous labor (&lt;3 hours) ..... 08 <input type="checkbox"/></p> <p>Prolonged labor (&gt;20 hours) ..... 09 <input type="checkbox"/></p> <p>Dysfunctional labor ..... 10 <input type="checkbox"/></p> <p>Breech/Malpresentation ..... 11 <input type="checkbox"/></p> <p>Cephalopelvic disproportion ..... 12 <input type="checkbox"/></p> <p>Cord prolapse ..... 13 <input type="checkbox"/></p> <p>Anesthetic complications ..... 14 <input type="checkbox"/></p> <p>Fetal distress ..... 15 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 16 <input type="checkbox"/></p> <p style="text-align: center;"><i>(Specify)</i></p>	<p><b>43. CONGENITAL ANOMALIES OF CHILD</b> <i>(Check all that apply)</i></p> <p>Anencephalus ..... 01 <input type="checkbox"/></p> <p>Spina bifida/Meningocele ..... 02 <input type="checkbox"/></p> <p>Hydrocephalus ..... 03 <input type="checkbox"/></p> <p>Microcephalus ..... 04 <input type="checkbox"/></p> <p>Other central nervous system anomalies <i>(Specify)</i> ..... 05 <input type="checkbox"/></p> <p>Heart malformations ..... 06 <input type="checkbox"/></p> <p>Other circulatory/respiratory anomalies <i>(Specify)</i> ..... 07 <input type="checkbox"/></p> <p>Rectal atresia/stenosis ..... 08 <input type="checkbox"/></p> <p>Tracheo-esophageal fistula/Esophageal atresia ..... 09 <input type="checkbox"/></p> <p>Omphalocele/ Gastroschisis ..... 10 <input type="checkbox"/></p> <p>Other gastrointestinal anomalies <i>(Specify)</i> ..... 11 <input type="checkbox"/></p> <p>Malformed genitalia ..... 12 <input type="checkbox"/></p> <p>Renal agenesis ..... 13 <input type="checkbox"/></p> <p>Other urogenital anomalies <i>(Specify)</i> ..... 14 <input type="checkbox"/></p> <p>Cleft lip/palate ..... 15 <input type="checkbox"/></p> <p>Polydactyly/Syndactyly/Adactyly ..... 16 <input type="checkbox"/></p> <p>Club foot ..... 17 <input type="checkbox"/></p> <p>Diaphragmatic hernia ..... 18 <input type="checkbox"/></p> <p>Other musculoskeletal/integumental anomalies <i>(Specify)</i> ..... 19 <input type="checkbox"/></p> <p>Down's syndrome ..... 20 <input type="checkbox"/></p> <p>Other chromosomal anomalies <i>(Specify)</i> ..... 21 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 22 <input type="checkbox"/></p> <p style="text-align: center;"><i>(Specify)</i></p>
<p><b>38b. OTHER RISK FACTORS FOR THIS PREGNANCY</b> <i>(Complete all items)</i></p> <p>Tobacco use during pregnancy ..... Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p style="padding-left: 20px;">Average number cigarettes per day _____</p> <p>Alcohol use during pregnancy ..... Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p style="padding-left: 20px;">Average number drinks per week _____</p> <p>Weight gained during pregnancy _____ lbs.</p>	<p><b>41. METHOD OF DELIVERY</b> <i>(Check all that apply)</i></p> <p>Vaginal ..... 01 <input type="checkbox"/></p> <p>Vaginal birth after previous C-section ..... 02 <input type="checkbox"/></p> <p>Primary C-section ..... 03 <input type="checkbox"/></p> <p>Repeat C-section ..... 04 <input type="checkbox"/></p> <p>Forceps ..... 05 <input type="checkbox"/></p> <p>Vacuum ..... 06 <input type="checkbox"/></p>	
<p><b>39. OBSTETRIC PROCEDURES</b> <i>(Check all that apply)</i></p> <p>Amniocentesis ..... 01 <input type="checkbox"/></p> <p>Electronic fetal monitoring ..... 02 <input type="checkbox"/></p> <p>Induction of labor ..... 03 <input type="checkbox"/></p> <p>Stimulation of labor ..... 04 <input type="checkbox"/></p> <p>Tocolysis ..... 05 <input type="checkbox"/></p> <p>Ultrasound ..... 06 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 07 <input type="checkbox"/></p> <p style="text-align: center;"><i>(Specify)</i></p>	<p><b>42. ABNORMAL CONDITIONS OF THE NEWBORN</b> <i>(Check all that apply)</i></p> <p>Anemia (Hct. &lt;39/Hgb. &lt;13) ..... 01 <input type="checkbox"/></p> <p>Birth injury ..... 02 <input type="checkbox"/></p> <p>Fetal alcohol syndrome ..... 03 <input type="checkbox"/></p> <p>Hyaline membrane disease/RDS ..... 04 <input type="checkbox"/></p> <p>Meconium aspiration syndrome ..... 05 <input type="checkbox"/></p> <p>Assisted ventilation &lt;30 min ..... 06 <input type="checkbox"/></p> <p>Assisted ventilation ≥30 min ..... 07 <input type="checkbox"/></p> <p>Seizures ..... 08 <input type="checkbox"/></p> <p>None ..... 00 <input type="checkbox"/></p> <p>Other ..... 09 <input type="checkbox"/></p> <p style="text-align: center;"><i>(Specify)</i></p>	

Figure 1. New maternal and infant health items from the 1989 revision of the U.S. Standard Certificate of Live Birth

nant women did not smoke (7). Other studies have indicated that 21–39 percent of all low weight births occur as a consequence of maternal smoking (4). The mechanisms through which tobacco usage adversely affects pregnancy outcome have been described elsewhere (4,8).

Tobacco use during pregnancy was reported on the birth certificates of 43 States and the District of Columbia in 1989. This information was not available for California, Indiana, Louisiana, Nebraska, New York, Oklahoma, and South Dakota. Eight percent of the births in the reporting States lacked information on the mother's smoking status (table 2).

According to data from the birth certificates, 20 percent of mothers giving birth in 1989 were reported to have smoked during pregnancy, the same level as reported in the 1988 National Maternal and Infant Health Survey (9). White mothers were slightly

more likely to smoke than were black mothers, 20 percent compared with 17 percent. Overall, the smoking rate was highest for mothers aged 18–19 years (24 percent) and lowest for young teenagers under 15 years (8 percent) and for mothers in their forties (13 percent). This pattern by age is generally observed for white mothers, but for black mothers, smoking is most prevalent for mothers aged 25–34 years (23 percent). Among mothers who smoked, nearly three in five were reported to have smoked less than half a pack of cigarettes (10 or fewer) per day; about one in five smoked five cigarettes or less per day. More than a third, however, smoked 16 cigarettes or more per day.

The number of cigarettes smoked generally increases as maternal age advances. Of mothers aged 15–17 years who smoked, 25 percent smoked 16 cigarettes or more daily compared with 45 percent of mothers aged 40 years and over.

Black mothers were not only less likely to smoke than were white mothers, but those who were smokers smoked much less. On the average, 75 percent of black women compared with 54 percent of white women smoked 10 cigarettes or fewer per day. Conversely, 38 percent of white mothers compared with 21 percent of black mothers smoked 16 cigarettes or more per day. The relationships between age and tobacco use were similar for white and for black mothers.

Previous studies have indicated a much lower level of smoking among Hispanic women than among non-Hispanic women (6,10,11). Data from the 1989 birth file for 42 reporting States and the District of Columbia confirm these findings (table 3). On the average, 8 percent of Hispanic mothers smoked during pregnancy compared with 22 percent of white non-Hispanic mothers and 17 percent of black non-Hispanic mothers. Tobacco

use is especially low for Mexican (6 percent), Cuban (7 percent), and Central and South American mothers (4 percent), while 15 percent of Puerto Rican mothers were reported to have smoked during pregnancy.

There is a distinctive pattern in tobacco use according to the mother's educational attainment (table 4). Women with 9–11 years of schooling were most likely to be smokers (35 percent). The proportion of smokers declined thereafter with advancing educational attainment; college graduates were least likely to smoke (5 percent). Women with a grade school education or less and women who are high school graduates were about equally likely to smoke, 21–22 percent. These relationships between tobacco use and educational attainment were observed for white and for black mothers. A racial differential was observed only for women with a high school education or less. For women with some college or who were college graduates, there was little difference in tobacco use between white and black mothers.

The number of cigarettes smoked was greatest on the average for women with 8 years or less of schooling: 48 percent smoked at least 11 cigarettes a day compared with 30 percent who were college graduates. These relationships were observed for white and for black mothers, but within each educational attainment group, black mothers smoked less than white mothers.

Maternal smoking has been linked with an elevated risk of a low-birth-weight outcome. Data from the 1989 birth file confirm that babies born to mothers who smoke during pregnancy are much more likely to be underweight, 11.4 percent compared with 6.0 percent (table 5). The differential by smoking status tends to increase as maternal age advances. For example, among teenage mothers, the proportions of low-birth-weight infants were 11.0 percent for smokers and 9.0 percent for nonsmokers. For mothers aged 30 years and older, the disparity in low birth weight was more than double, a range of 12.6–15.7 percent for smokers compared with 5.2–7.4 percent for nonsmokers.

When the data are examined by race, it is evident that smoking is an important factor in low-birth-weight levels for infants born to white and to black mothers. Among white mothers, 9.5 percent of smokers compared with 4.7 percent of nonsmokers had a low-birth-weight baby. Among black mothers, the incidence of a low-birth-weight outcome was 21.6 percent for smokers compared with 11.7 percent for nonsmokers. The impact of smoking on low-birth-weight levels was considerable for white and for black mothers in all age groups.

Previous studies have shown that the chance of a low-birth-weight outcome increases steadily as the level of smoking increases (5). In 1989 white women who smoked 1½–2 packs of cigarettes per day were 47 percent more likely than white women who smoked half a pack of cigarettes or less and 172 percent more likely than white women who did not smoke to have a low-birth-weight infant. Similarly among black mothers, those smoking 1½–2 packs per day were 51 percent more likely than those smoking half a pack or less per day and 160 percent more likely than nonsmokers to have a low-birth-weight baby.

### Alcohol use during pregnancy

Alcohol use during pregnancy is also a risk factor for poor birth outcome. Studies have shown that heavy alcohol use causes a series of adverse effects. Fetal alcohol syndrome in particular is characterized by growth retardation, facial malformations, and dysfunctions of the central nervous system, including mental retardation (12). Alcohol consumption has also been shown to affect birth weight independently of tobacco use and other maternal and infant characteristics (13).

Alcohol use was reported on the birth certificates of 44 States and the District of Columbia in 1989. This information was not available for California, Louisiana, Nebraska, New York, Oklahoma, and South Dakota. The specific questions on alcohol use asked if the mother used alcohol during pregnancy and the average number of drinks per week. This information was not

reported for 8 percent of the births in the reporting areas.

Four percent of mothers giving birth in 1989 reported alcohol use during pregnancy (table 6). The proportions were the same for white and for black mothers. Hispanic mothers were only about half as likely to report alcohol use during pregnancy, 2 percent overall, according to data from 43 reporting States and the District of Columbia. The proportions ranged from 1 percent for Cuban mothers to 3 percent for Puerto Rican mothers (table 7).

There is likely a substantial underreporting of alcohol use, considering the proportion of births for which alcohol use was not stated and the possible stigma associated with drinking, especially during pregnancy. In addition, other recent studies based on personal interviews and written questionnaires suggest levels of alcohol use during pregnancy of 20 percent or more (14, 15). It may be that women who consumed less than one drink per week or only one or two drinks per month considered themselves nondrinkers. One recent study showed a declining level of alcohol use during pregnancy between 1985 and 1988, from 32 percent to 20 percent, but no decline in the number of drinks consumed (15).

The proportion of mothers reported on the birth certificate to have consumed alcohol during pregnancy increased steadily with age, from 1 percent of mothers under 15 years of age to 6 percent of mothers aged 35–39 years, and fell slightly to 5 percent for mothers aged 40 years and over (table 6). Although white teenagers and white women in their forties were more likely than their black counterparts to drink, among mothers aged 20–34 years the reverse was true.

Among mothers who drank during pregnancy, 61 percent reported consuming one drink or less per week; 18 percent, two drinks; and 21 percent reported consuming three drinks or more per week. Although there was no difference in the proportion of drinkers between white women and black women, there were considerable differences in the number of drinks consumed per week. Sixty-five percent

of white mothers compared with 42 percent of black mothers had one drink or less per week. Conversely, black mothers who drank were twice as likely as white mothers to have consumed three or more drinks per week, 37 percent compared with 18 percent. In all age groups, black mothers who drank consumed more drinks per week than did white mothers who drank.

Other data from the 1989 birth certificate file show that maternal alcohol use, although it is underreported, has a detrimental effect on pregnancy outcome. The effect of alcohol use on low birth weight is highly dependent on the amount of alcohol consumed. (Detailed data not included in this report.) Of the mothers reporting three drinks or more per week, 15–20 percent of births were of low birth weight compared with 8–12 percent of births to mothers reporting up to two drinks per week and 7 percent of births to mothers who did not drink. Similar patterns were observed for births to white and to black mothers, but at every level of drinking, births to black mothers were at double to triple the risk of a low-birth-weight outcome.

### Maternal weight gain

According to guidelines in effect in 1989, a weight gain during pregnancy of 22–27 pounds was recommended (16). (Guidelines issued in 1990 by the National Academy of Sciences, Institute of Medicine, advise an optimum weight gain of 25–35 pounds for a normal-weight woman (17).) These guidelines are recommended to produce the best pregnancy outcome, particularly in terms of infant birth weight. National data on the distribution of births by maternal weight gain and on the relationship of weight gain to pregnancy outcome were published for the first time in the mid-1980's (18,19). Those data were derived from the 1980 National Natality Survey and from the 1980 National Fetal Mortality Survey, both sample surveys. The data in this report are derived from an item on the 1989 birth certificates asking the mother's weight gain during pregnancy. Forty-six States

and the District of Columbia reported this information; it was not available for California, Louisiana, Nebraska, and Oklahoma. Maternal weight gain was not stated on 17 percent of the birth certificates in the reporting areas.

It is evident that the weight gain for many pregnant women is less than adequate. In 1989, 18 percent of women whose pregnancies lasted at least 40 weeks gained less than 21 pounds. Black mothers with pregnancies of 40 weeks or more were 59 percent more likely than comparable white mothers to gain less than 21 pounds (27 percent compared with 17 percent) and 86 percent more likely to gain less than 16 pounds (13 percent compared with 7 percent) (table 8). Regardless of length of pregnancy, black women were more likely than white women to gain less than 21 pounds, with the racial disparity increasing as period of gestation lengthened.

Weight gain of less than 21 pounds was also much more common among teenage mothers, mothers in their forties, unmarried mothers, or mothers with less than a high school education. (Data not shown in this report.) However, large racial differences persist, even after age, marital status, or educational attainment is taken into account.

Data on weight gain for Hispanic women from 45 States and the District of Columbia (although not presented in detail in this report) show that 23 percent with pregnancies of 40 weeks or more gained less than 21 pounds. Mexican mothers were most likely to be in the low-weight-gain group (25 percent), followed by Puerto Rican and Central and South American mothers (22 percent each), and Cuban mothers (15 percent).

The median weight gain for mothers giving birth in 1989 was 30.3 pounds; for white mothers it was 30.5 pounds, and for black mothers it was 27.8 pounds (table 8). Mothers whose pregnancies ended in preterm birth (less than 37 weeks gestation) had a median weight gain of 25.9 pounds. The median weight gain for women with pregnancies lasting 37–39 weeks was 30.2 pounds, and for women with pregnancies of 40 weeks and over it was 30.6 pounds. There were dispari-

ties in median weight gain among white, black, and Hispanic women, but the gap narrowed as period of gestation lengthened. For mothers whose pregnancies lasted at least 40 weeks, the median weight gains were 30.7 pounds for white women, 30.1 pounds for black women, and 30.2 pounds for Hispanic women.

Maternal weight gain has its most visible impact on pregnancy outcome in the infant's birth weight. Babies born to mothers who gain 31 pounds or more are at considerably reduced risk of low birth weight compared with babies born to mothers gaining less than 21 pounds, 3.9–4.1 percent compared with 10.4–15.7 percent (table 9). The advantage conferred by additional maternal weight gain is observed for white and for black mothers and remains even after the gestational period is taken into account. White infants born after pregnancies of 40 weeks or more to mothers who gained 31 pounds or more had a low-birth-weight rate of just 1 percent, and comparable black infants had a low-birth-weight rate of 2 percent.

The incidence of low birth weight for babies born to Hispanic mothers (12.3 percent) who gained less than 16 pounds was lower than that for babies born to white non-Hispanic mothers (12.7 percent) or to black non-Hispanic mothers (24.0 percent) (table 10). Low-birth-weight levels were relatively low for births to Mexican and Central and South American mothers in this weight-gain category, 10.7–10.8 percent. Apparently, Hispanic women whose weight gain is minimal are at lower risk of a low-birth-weight outcome. Other studies have shown that smaller weight gains are appropriate for optimum birth outcome if the mother is overweight (17); Mexican women are disproportionately overweight (20). Also, Hispanic women are less likely to smoke during pregnancy, another factor associated with low-birth-weight outcomes (4,5,6).

### Obstetric procedures

Obstetric technology has become increasingly sophisticated in recent years as more and more women undergo amniocentesis, ultrasound, and

other obstetric procedures. Data on six specific obstetric procedures were reported on the birth certificates of 47 States and the District of Columbia in 1989. Data were not available for Louisiana, Nebraska, and Oklahoma. These data can be used to identify the groups of women for whom these procedures are most likely and the relationships of the procedures to various maternal and infant characteristics and to birth outcome. This information was not reported for 5–6 percent of the births in the reporting areas in 1989.

Electronic fetal monitoring was reported more frequently than any other procedure—for more than two-thirds of the births in 1989 (table 11). Ultrasound was also used extensively—for nearly half of the births. Labor was induced for 90 of every 1,000 live births, and stimulation of labor was used for 109 per 1,000 live births. Amniocentesis was reported at a rate of 32 per 1,000 live births. Electronic fetal monitoring was widely used for births to mothers in all age groups. The greatest use was for births to teenagers, 703 per 1,000. The rates of use of this technology declined somewhat as maternal age advanced, to 642 per 1,000 for mothers in their forties.

The use of ultrasound varied directly with age, increasing from 458 per 1,000 births for teenagers to 497 per 1,000 for mothers aged 35 years and over. Induction of labor also generally varied directly with age.

The most distinctive relationship of obstetric procedure and maternal age was observed for amniocentesis, a prenatal diagnostic test for genetic disorders. Although the rate for teenagers was only 12 per 1,000 births, it rose to 32 per 1,000 for mothers aged 30–34, to 162 per 1,000 for mothers aged 35–39 years, and to 200 per 1,000 births for mothers in their forties. Amniocentesis is especially recommended for older women whose pregnancies are at an elevated risk for certain genetic disorders.

White women were more likely than black women to undergo amniocentesis (35 compared with 20 per 1,000), induction of labor (97 compared with 67), and stimulation of labor (111 compared with 101). The rates for

other procedures were similar for white and for black women. The racial differential in the use of amniocentesis is observed primarily for mothers aged 30 years and over, with white mothers 55 to 89 percent more likely to have this procedure.

There are distinctive patterns of use of the selected medical procedures according to other maternal and infant characteristics. The rates for all the procedures were higher for mothers beginning prenatal care in the first trimester. Mothers with some college had higher rates for amniocentesis, for induction and stimulation of labor, and for ultrasound. Mothers with low-birth-weight infants were much more likely than mothers with normal-weight infants to have undergone amniocentesis, tocolysis, and ultrasound. Similarly, rates for amniocentesis and tocolysis were higher for mothers with preterm births than they were for mothers with pregnancies of longer gestation. Rates for stimulation and induction of labor were higher for term and postterm births.

### Complications of labor and/or delivery

Assessment of complications of labor and/or delivery can help account for poor birth outcome as well as the use of certain obstetric and delivery procedures. For example, maternal complications of pregnancy and complications associated with the placenta and umbilical cord are among the 10 leading causes of infant death (21). In addition, abnormal labor, breech/malpresentation, cephalopelvic disproportion, and fetal distress are all associated with very high rates of cesarean delivery (3); these relationships are discussed later in the text.

Data on 15 specific complications of labor and/or delivery for births occurring in 47 States and the District of Columbia in 1989 are shown in table 12. Data are not available for Louisiana, Nebraska, and Oklahoma. Information on complications was not provided on 4–6 percent of the birth certificates in the reporting areas.

Meconium, moderate/heavy, was reported at a rate of 63 per 1,000 live

births, more frequently than any other complication. Other complications reported relatively often were dysfunctional labor (30 per 1,000), premature rupture of membrane (36 per 1,000), breech/malpresentation (39 per 1,000), cephalopelvic disproportion (40 per 1,000), and fetal distress (46 per 1,000).

Rates for meconium and fetal distress tended to be highest for teenage mothers and for mothers in their forties. Rates for dysfunctional labor and breech/malpresentation generally rose with age.

Rates of occurrence of the various complications differed for white and for black mothers. Black mothers had substantially higher rates for meconium, premature rupture of membrane, and fetal distress; white mothers had higher rates for dysfunctional labor, breech/malpresentation, and cephalopelvic disproportion.

Many of the reported complications occurred with much greater frequency among mothers with low-birth-weight infants and preterm infants than among mothers with normal weight births and births of longer gestation. (Detailed data are not shown in this report.) These included premature rupture of membrane, abruptio placenta, placenta previa, other excessive bleeding, seizures during labor, precipitous labor, breech/malpresentation, cord prolapse, and fetal distress.

### Method of delivery

Using information from the National Hospital Discharge Survey (NHDS), a sample survey (3), trends in cesarean section—a surgical procedure performed in nearly one in every four deliveries in the United States—have been tracked for more than 20 years. Beginning with the 1989 data year, information from the birth certificate can be used to monitor trends in method of delivery and to compare demographic, socioeconomic, and health characteristics of the mother and child.

Data on method of delivery were reported on the birth certificates of 45 States and the District of Columbia in 1989. Information was not available for Louisiana, Maryland, Nebraska,

Nevada, and Oklahoma. Five percent of the birth records in the reporting areas did not indicate the method of delivery. The following discussion does not include information on forceps and vacuum procedures that are included in the method of delivery question on the birth certificates. Information on those procedures will be presented in a forthcoming annual report (22).

According to birth certificate data, 22.8 percent of births were by C-section in 1989 (table 13). This rate is comparable to that derived from the 1989 NHDS, 23.8 percent (3).

The rate for primary C-sections was 16.1 per 100 births to women who have not had a previous cesarean delivery. Data from the 1989 NHDS show a similar rate (17.1 percent). The proportion of all cesarean deliveries that were repeat, that is, for mothers who have had a previous C-section, was 36.9 percent in 1989. The comparable NHDS-based rate was 35.6.

The rate for vaginal birth after previous cesarean delivery (VBAC) was 18.9 per 100 births to women with a previous cesarean delivery. The comparable rate from the NHDS was 18.5 percent.

Cesarean delivery rates increased directly with advancing maternal age. The rates in 1989 rose from 16.9 percent for women under 20 years of age to 31.9 percent for women in their forties. This pattern is identical to that found in the NHDS (3).

Rates for primary C-section also rose directly with age of mother, from 15.0 percent (mothers under 20 years of age) to 23.2 percent (for mothers in their forties). Rates for repeat cesarean ranged from 32.2 to 44.9 for mothers aged 20 years and over. The rate for teenage mothers was quite low, 14.1 percent. VBAC rates were highest for teenage mothers, 24.0 percent, but declined to 14.0 percent for mothers in their forties.

C-section rates by race of mother were remarkably similar, 23.2 percent for white women and 22.0 percent for black women. Rates for primary and repeat C-sections and VBAC were also very similar for white and for black women, and the patterns by age for each were comparable as well.

Cesarean (including total, primary, and repeat) and VBAC rates for women with selected medical risk factors, complications of labor and/or delivery, and obstetric procedures are shown in table 14. Certain medical risk factors are associated with elevated overall C-section rates (35–52 percent) and primary C-section rates (27–48 percent), including diabetes, genital herpes, hydramnios/oligohydramnios, chronic hypertension, eclampsia, and uterine bleeding. VBAC rates for women with many of these risk factors were low.

C-section rates for mothers with most complications of labor and/or delivery are very high (table 14). This would be expected, particularly as these complications impact immediately on the delivery process. Rates exceeding 50 percent were reported for women with abruptio placenta, placenta previa, dysfunctional labor, breech/malpresentation, cephalopelvic disproportion, cord prolapse, anesthetic complications, and fetal distress.

There was no particular pattern for C-section rates associated with women undergoing various obstetric procedures, except that the rate for women undergoing tocolysis was elevated, 30.5 percent. Tocolysis is used to inhibit preterm uterine contractions to extend the length of the pregnancy.

Throughout the 1980's, birth data in the United States have shown a distinctive pattern in the occurrence of births by day of week. Deliveries are increasingly concentrated on Tuesdays through Fridays, with correspondingly fewer on Saturdays, Sundays, and major holidays. In accounting for this weekend deficit, most attention has focused on the high level of C-section deliveries and the continued high proportion of them that are repeat cesareans. The index of occurrence can be used to examine the daily pattern of occurrence of births by method of delivery. This index is defined as the ratio of the average number of births occurring on a given day of the week to the average daily number of births for the year multiplied by 100.

There is a weekend deficit regardless of method of delivery, but it is substantially greater for C-sections, especially repeat C-sections, than for

vaginal deliveries (table 15). Tuesday is the most popular birth day for vaginal deliveries, with an index of occurrence of 106.3 compared with an index of 87.3 for Sunday births, a disparity of 22 percent. Since some vaginal deliveries are induced (9 percent in 1989) a weekend deficit for vaginal births is not unexpected.

C-sections, both primary and repeat, are more likely to occur on Fridays. The difference between Friday and Sunday births for C-sections was 50 percent. For primary C-sections the differential was 36 percent, and for repeat C-sections it was 70 percent.

Cesarean delivery rates tend to be highest for very small babies (under 2,500 grams or 5 lb 8 oz) and for babies weighing 4,000 grams or more. Rates are also elevated for preterm deliveries (less than 37 weeks of gestation). (Detailed data are not included in this report.)

### Abnormal conditions of the newborn

Information on abnormal conditions of the newborn is another measure of the extent to which babies experience medical problems beginning at birth. Some of these conditions are associated with very high rates of infant morbidity, and hyaline membrane disease/respiratory distress syndrome (RDS) in particular is associated with high infant mortality rates. Data on 8 specific abnormal conditions were reported on the birth certificates of 47 States and the District of Columbia in 1989. These data were not available for Louisiana, Nebraska, and Oklahoma. Four to 7 percent of the birth certificates in the reporting areas lacked any information on the presence or absence of abnormal conditions.

The condition reported with greatest frequency was assisted ventilation of less than 30 minutes, with a rate of 11 per 1,000 live births (table 16). Hyaline membrane disease/RDS and assisted ventilation of 30 minutes or longer, both indicative that the infant's survival chances are seriously compromised, were reported at rates of 6 and 7 per 1,000, respectively.

Birth injuries and fetal alcohol syndrome are believed to be substantially underreported on the birth certificate. The rate of reporting for birth injuries was 2 per 1,000, the same level as measured from birth certificate data for 1973–74, the last time national rates were compiled (23). The rate for fetal alcohol syndrome was 0.2 per 1,000 births. Underreporting is no doubt substantial for this condition, because of both the stigma involved and the possible delay in recognizing the condition in the limited time before the birth certificate is filed (12).

Rates for most of the conditions were higher for births to teenagers and to mothers in their forties. Rates for birth injury were higher for white births than for black births, while rates for anemia, hyaline membrane disease/RDS, meconium aspiration syndrome, assisted ventilation of 30 minutes or longer, and seizures were higher for black births than for white births.

Babies reported to have anemia, fetal alcohol syndrome, hyaline membrane disease/RDS, or assisted ventilation of 30 minutes or longer had very high rates of low birth weight, 24–65 percent. Low-birth-weight levels for black infants with these conditions were even higher, 32–81 percent. The risk of preterm delivery was also substantial for infants with these conditions. Rates for birth injury, hyaline membrane disease/RDS, and assisted ventilation of less than 30 minutes and of 30 minutes or longer were higher for male babies than for female babies.

### Congenital anomalies of child

Information on 21 selected congenital anomalies or groups of anomalies was reported on the birth certificates of 45 States and the District of Columbia in 1989. Data were not available for Louisiana, Nebraska, New Mexico, New York, and Oklahoma. The certificates for 7 percent of the births in the reporting areas did not indicate the presence or absence of any anomalies.

It has long been recognized that the birth certificate is not the best source of data on many congenital anomalies. Except for the most visible

and most severe anomalies, they are incompletely reported on the birth record. Because birth registration must be carried out within a very short interval after the birth, the reporting of specific anomalies often depends heavily on how easily they are recognized. Hopefully, reporting completeness will improve with the change from an open-ended to a checkbox format listing primarily anomalies that are likely to be recognized before the birth certificate is filed.

Rates of occurrence of the selected anomalies are computed per 100,000 total live births and are shown in table 17. Anomalies occurring in 1 percent or more of all births (a rate of 100 per 100,000 or more) included heart malformations, other circulatory/respiratory anomalies, other urogenital anomalies, cleft lip/palate, polydactyly/syndactyly/adactyly, and other musculoskeletal anomalies.

For several of the anomalies, there are distinctive patterns of occurrence by maternal age. Rates declined with age for hydrocephalus, omphalocele, and polydactyly/syndactyly/adactyly. Rates generally rose with age for heart malformations, other circulatory anomalies, Down's syndrome, and other chromosomal anomalies. The age differentials for Down's syndrome and other chromosomal anomalies were particularly striking with births to mothers in their forties at 4 to 10 times the risk as births to mothers in their teens. These relationships between rates of occurrence and maternal age were very similar to those found in an earlier report on congenital anomalies from birth certificate data (23).

For most anomalies with a racial disparity in rates of occurrence, the rates for births to white mothers were substantially higher than the rates for births to black mothers. These anomalies included spina bifida, heart malformations, other circulatory malformations, tracheo-esophageal fistula/esophageal atresia, malformed genitalia, other urogenital anomalies, cleft lip/palate, club foot, and Down's syndrome. The one anomaly with a much greater rate of occurrence among black infants was polydactyly/syndactyly/adactyly. These relationships are also very similar to

those observed in the previous report on congenital anomalies (23).

Other data for 1989 births (not included in this report) show that male babies generally have a considerably higher incidence of congenital anomalies than female babies. This differential arises mainly from higher rates for congenital anomalies of the urogenital system. Male babies also had higher rates than female babies for other circulatory anomalies, polydactyly/syndactyly/adactyly, and club foot.

Infants with congenital anomalies are very likely to be underweight. Low-birth-weight levels of 18–44 percent were measured for infants with anomalies of the central nervous system, heart, and gastrointestinal system.

### References

1. Taffel SM, Ventura SJ, Gay GA. Revised U.S. certificate of birth: New opportunities for research on birth outcome. *Birth* 16(4):188–93. 1989.
2. National Center for Health Statistics. Advance report of final natality statistics, 1989. Monthly vital statistics report; vol 40 no 8, suppl. Hyattsville, Maryland: Public Health Service. 1991.
3. Taffel SM, Placek PJ, Moien M, Kosary CL. 1989 U.S. cesarean section rate steadies: VBAC rate rises to nearly one in five. *Birth* 18(2):73–77. 1991.
4. Centers for Disease Control. Office on Smoking and Health. Reducing the health consequences of smoking: 25 years of progress. A report of the Surgeon General. Washington: U.S. Department of Health and Human Services. 1989.
5. Kleinman JC, Madans JH. The effects of maternal smoking, physical stature, and educational attainment on the incidence of low birth weight. *Am J Epidemiol* 121(6): 843–55. 1985.
6. Fichtner RR, Sullivan KM, Zyrkowski CL, Trowbridge FL. Racial/ethnic differences in smoking, other risk factors, and low birth weight among low-income pregnant women, 1978–88. In: CDC Surveillance Summaries. Morbidity and mortality weekly report; 39(No.SS-3):13–21. Atlanta, Georgia: Centers for Disease Control. 1990.

7. Kleinman JC, Pierre MB, Madans JH, et al. The effects of maternal smoking on fetal and infant mortality. *Am J Epidemiol* 127(2): 274-82. 1988.
8. Floyd RL, Zahniser SC, Gunter EP, Kendrick JS. Smoking during pregnancy: Prevalence, effects, and intervention strategies. *Birth* 18(1): 48-53. 1991.
9. National Center for Health Statistics. Unpublished data from 1988 National Maternal and Infant Health Survey. 1991.
10. Schoenborn C. Health promotion and disease prevention, United States, 1985. National Center for Health Statistics. *Vital Health Stat* 10(163). 1988.
11. Felice ME, Shragg MA, James M, Hollingsworth DR. Clinical observations of Mexican-American, caucasian, and black pregnant teenagers. *J Adolesc Health Care*. 7(5):305-10. 1986.
12. National Institute on Alcohol Abuse and Alcoholism. Alcohol and Health. Seventh special report to the U.S. Congress from the Secretary of Health and Human Services. Rockville, Maryland: U.S. Department of Health and Human Services. 1990.
13. Graves C, Malin H, Placek P, et al. The effect of maternal alcohol and cigarette use on infant birthweight. Paper presented at the National Council on Alcoholism Forum. 1983.
14. Pamuk ER, Mosher WD. Health aspects of pregnancy and childbirth, United States, 1982. National Center for Health Statistics. *Vital Health Stat* 23(16). 1988.
15. Serdula M, Williamson DF, Kendrick JS, et al. Trends in alcohol consumption by pregnant women, 1985-88. *JAMA* 265(7):876-79. 1991.
16. American College of Obstetricians and Gynecologists. Committee on professional standards. Standards for obstetric-gynecologic services. 7th ed. Washington: The American College of Obstetricians and Gynecologists. 1989.
17. Institute of Medicine. Subcommittee on Nutritional Status and Weight Gain During Pregnancy. Nutrition during pregnancy. National Academy of Sciences. Washington: National Academy Press. 1990.
18. Taffel SM. Maternal weight gain and the outcome of pregnancy, United States, 1980. National Center for Health Statistics. *Vital Health Stat* 21(44). 1986.
19. Taffel SM. Association between maternal weight gain and outcome of pregnancy. *J Nurse-Midwifery* 31(2):78-86. 1986.
20. Martorell R, Mendoza FS, Castillo RO. Genetic and environmental determinants of growth in Mexican-Americans. *Pediatrics* 84(5):864-71. 1989.
21. National Center for Health Statistics. Advance report of final mortality statistics, 1989. Monthly vital statistics report; vol 40 no 8, suppl 2. Hyattsville, Maryland: Public Health Service. 1992.
22. National Center for Health Statistics. Vital statistics of the United States, 1989, vol I, natality (in preparation).
23. Taffel S. Congenital anomalies and birth injuries among live births: United States, 1973-74. National Center for Health Statistics. *Vital Health Stat* 21(31). 1978.
24. Brockert JE, Stockbauer JW, Senner JW, et al. Recommended standard medical definitions for the U.S. Standard Certificate of Live Birth, 1989 revision. Paper presented at Annual Meeting of the Association for Vital Records and Health Statistics. 1990.

**List of tables**

1. Live births with selected medical risk factors and rates for selected medical risk factors, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989 . . . . .	11	and percent distribution by average number of drinks per week, according to age and race of mother: Total of 44 reporting States and the District of Columbia, 1989 . . . . .	17	12. Live births with selected complications of labor and/or delivery and rates for selected complications, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989 . . . . .	22
2. Number of live births by smoking status of mother, percent smokers, and percent distribution by average number of cigarettes smoked by mothers per day, according to age and race of mother: Total of 43 reporting States and the District of Columbia, 1989 . . . . .	12	7. Number of live births by drinking status of mother and percent drinkers, by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 43 reporting States and the District of Columbia, 1989 . . . . .	18	13. Live births by method of delivery, and rates of cesarean delivery and vaginal birth after previous cesarean delivery, by age and race of mother: Total of 45 reporting States and the District of Columbia, 1989 . . . . .	23
3. Number of live births by smoking status of mother and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 42 reporting States and the District of Columbia, 1989 . . . . .	13	8. Number of live births and percent distribution by weight gain during pregnancy and median weight gain, according to period of gestation and race of mother: Total of 46 reporting States and the District of Columbia, 1989 . . . . .	18	14. Rates of cesarean delivery and vaginal birth after previous cesarean delivery, by selected medical risk factors, complications of labor and/or delivery, and obstetric procedures: Total of 45 reporting States and the District of Columbia, 1989 . . . . .	24
4. Number of live births, percent of mothers who smoked cigarettes during pregnancy, and percent distribution by average number of cigarettes smoked by mothers per day, according to educational attainment and race of mother: Total of 42 reporting States and the District of Columbia, 1989 . . . . .	15	9. Percent low birth weight by weight gain during pregnancy, period of gestation, and race of mother: Total of 46 reporting States and the District of Columbia, 1989 . . . . .	19	15. Live births by day of week and index of occurrence by method of delivery, day of week, and race of mother: Total of 45 reporting States and the District of Columbia, 1989 . . . . .	25
5. Percent low birth weight by smoking status, age, and race of mother: Total of 43 reporting States and the District of Columbia, 1989 . . . . .	16	10. Percent low birth weight by weight gain during pregnancy and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 45 reporting States and the District of Columbia, 1989 . . . . .	20	16. Live births with selected abnormal conditions of the newborn and rates for selected abnormal conditions of the newborn, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989 . . . . .	26
6. Number of live births by drinking status of mother, percent drinkers,		11. Live births with selected obstetric procedures and rates for selected obstetric procedures, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989 . . . . .	21	17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 45 reporting States and the District of Columbia, 1989 . . . . .	27

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**Symbols**

- Data not available
  - . . . Category not applicable
  - Quantity zero
  - 0.0 Quantity more than zero but less than 0.05
  - \* Figure does not meet standard of reliability or precision (estimate is based on fewer than 20 births in numerator or denominator)
-

**Table 1. Live births with selected medical risk factors and rates for selected medical risk factors, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989**

[Rates are number of live births with specified medical risk factor per 1,000 live births in specified group]

Medical risk factor and race of mother	All births <sup>1</sup>	Medical risk factor reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
<b>All races<sup>2</sup></b>										
	Number			Rate						Number
Anemia . . . . .	3,896,605	69,840	19.1	30.3	22.9	15.8	14.2	14.5	16.2	237,304
Cardiac disease . . . . .	3,896,605	12,992	3.6	2.3	2.9	3.5	4.5	5.4	6.0	237,304
Acute or chronic lung disease . . . . .	3,896,605	10,976	3.0	3.5	2.9	2.7	3.0	3.4	4.3	237,304
Diabetes . . . . .	3,896,605	77,185	21.1	7.4	13.6	20.6	29.4	43.3	64.5	237,304
Genital herpes <sup>3,4</sup> . . . . .	3,430,329	26,688	8.1	5.3	6.8	8.1	10.2	11.5	9.3	129,961
Hydramnios/Oligohydramnios <sup>3</sup> . . . . .	3,737,993	20,013	5.7	5.6	5.6	5.4	5.6	7.1	9.7	232,043
Hemoglobinopathy <sup>3</sup> . . . . .	3,737,993	1,723	0.5	0.6	0.5	0.4	0.4	0.5	0.6	232,043
Hypertension, chronic . . . . .	3,896,605	26,806	7.3	3.1	4.7	6.4	9.8	17.4	30.5	237,304
Hypertension, pregnancy-associated . . . . .	3,896,605	105,530	28.2	35.4	29.4	26.4	26.4	31.2	41.2	237,304
Eclampsia . . . . .	3,896,605	16,050	4.4	7.3	4.6	3.6	3.4	4.4	6.3	237,304
Incompetent cervix <sup>3</sup> . . . . .	3,737,993	9,156	2.6	1.2	1.8	2.6	3.7	4.7	3.9	232,043
Previous infant 4000+ grams <sup>3</sup> . . . . .	3,737,993	40,296	11.5	2.1	7.4	12.5	17.0	20.9	25.4	232,043
Previous preterm or small-for-gestational-age infant <sup>3</sup> . . . . .	3,737,993	50,631	14.4	8.2	14.1	14.7	16.2	19.2	21.9	232,043
Renal disease . . . . .	3,896,605	9,921	2.7	4.1	3.2	2.3	2.1	2.1	2.6	237,304
Rh sensitization <sup>5</sup> . . . . .	3,857,868	21,776	6.0	4.8	5.8	6.2	6.4	6.5	7.1	238,112
Uterine bleeding <sup>4</sup> . . . . .	3,588,941	31,349	9.1	6.7	8.1	9.2	10.4	11.8	11.6	135,240
<b>White</b>										
Anemia . . . . .	3,090,834	44,624	15.4	24.4	18.3	13.0	12.1	12.5	14.3	184,242
Cardiac disease . . . . .	3,090,834	10,699	3.7	2.3	2.9	3.6	4.6	5.5	6.0	184,242
Acute or chronic lung disease . . . . .	3,090,834	8,227	2.8	3.3	2.7	2.6	2.9	3.3	4.5	184,242
Diabetes . . . . .	3,090,834	61,681	21.2	8.3	14.1	20.3	28.2	40.8	61.2	184,242
Genital herpes <sup>3,4</sup> . . . . .	2,693,792	22,161	8.5	4.5	6.6	8.5	11.2	12.9	10.8	95,000
Hydramnios/Oligohydramnios <sup>3</sup> . . . . .	2,951,908	15,533	5.6	5.5	5.5	5.3	5.5	6.9	9.8	179,978
Hemoglobinopathy <sup>3</sup> . . . . .	2,951,908	680	0.2	0.2	0.2	0.2	0.3	0.3	*	179,978
Hypertension, chronic . . . . .	3,090,834	18,828	6.5	2.6	4.3	5.7	8.4	14.3	23.9	184,242
Hypertension, pregnancy-associated . . . . .	3,090,834	84,742	29.2	36.3	30.6	26.8	26.4	30.5	40.1	184,242
Eclampsia . . . . .	3,090,834	11,609	4.0	6.4	4.4	3.4	3.2	4.2	5.5	184,242
Incompetent cervix <sup>3</sup> . . . . .	2,951,908	6,979	2.5	1.1	1.7	2.4	3.6	4.6	4.0	179,978
Previous infant 4000+ grams <sup>3</sup> . . . . .	2,951,908	36,225	13.1	2.5	8.4	13.7	18.7	23.0	28.4	179,978
Previous preterm or small-for-gestational-age infant <sup>3</sup> . . . . .	2,951,908	38,106	13.7	7.2	13.2	13.7	15.5	18.7	21.6	179,978
Renal disease . . . . .	3,090,834	8,040	2.8	4.5	3.3	2.4	2.1	2.1	2.6	184,242
Rh sensitization <sup>5</sup> . . . . .	3,056,337	19,646	6.8	5.7	6.7	6.9	7.2	7.4	8.0	184,958
Uterine bleeding <sup>4</sup> . . . . .	2,832,718	25,833	9.5	7.2	8.4	9.4	10.7	12.0	11.7	99,280
<b>Black</b>										
Anemia . . . . .	636,865	21,452	36.3	42.2	39.7	32.2	29.8	28.1	26.8	46,261
Cardiac disease . . . . .	636,865	1,888	3.2	2.4	3.0	3.3	4.1	4.8	7.1	46,261
Acute or chronic lung disease . . . . .	636,865	2,406	4.1	4.2	3.9	3.8	4.4	5.2	5.4	46,261
Diabetes . . . . .	636,865	10,826	18.3	5.2	11.2	21.1	34.3	56.1	78.7	46,261
Genital herpes <sup>3,4</sup> . . . . .	577,460	3,840	7.0	7.0	7.8	6.9	6.2	5.3	4.9	30,547
Hydramnios/Oligohydramnios <sup>3</sup> . . . . .	620,429	3,650	6.3	5.8	5.8	6.5	7.3	8.1	11.8	45,366
Hemoglobinopathy <sup>3</sup> . . . . .	620,429	920	1.6	1.6	1.6	1.5	1.7	1.3	*	45,366
Hypertension, chronic . . . . .	636,865	7,083	12.0	4.2	7.0	11.2	21.9	44.7	81.2	46,261
Hypertension, pregnancy-associated . . . . .	636,865	17,329	29.3	33.9	25.7	26.4	29.9	40.4	52.5	46,261
Eclampsia . . . . .	636,865	3,870	6.6	9.1	5.7	5.3	5.8	7.4	12.0	46,261
Incompetent cervix <sup>3</sup> . . . . .	620,429	1,902	3.3	1.4	2.4	4.4	5.5	6.3	*	45,366
Previous infant 4000+ grams <sup>3</sup> . . . . .	620,429	2,753	4.8	1.3	3.4	6.3	8.0	11.4	14.0	45,366
Previous preterm or small-for-gestational-age infant <sup>3</sup> . . . . .	620,429	10,315	17.9	10.2	17.8	21.4	22.2	23.8	27.5	45,366
Renal disease . . . . .	636,865	1,487	2.5	3.0	2.8	2.1	2.1	1.9	*	46,261
Rh sensitization <sup>5</sup> . . . . .	633,622	1,835	3.1	3.0	2.9	3.5	3.1	3.1	4.6	46,356
Uterine bleeding <sup>4</sup> . . . . .	593,896	4,355	7.7	5.9	7.3	8.7	8.9	10.5	9.5	31,443

<sup>1</sup>Total number of births to residents of areas reporting specified medical risk factor.

<sup>2</sup>Includes races other than white and black.

<sup>3</sup>New York City (but not New York State) reports this risk factor.

<sup>4</sup>Texas does not report this risk factor.

<sup>5</sup>Kansas does not report this risk factor.

NOTE: Excludes data for Louisiana, Nebraska, and Oklahoma, which did not require reporting of medical risk factors.

Table 2. Number of live births by smoking status of mother, percent smokers, and percent distribution by average number of cigarettes smoked by mothers per day, according to age and race of mother: Total of 43 reporting States and the District of Columbia, 1989

Smoking status, smoking measure, and race of mother	Age of mother									
	All ages	Under 15 years	15-19 years			20-24 years	25-29 years	30-34 years	35-39 years	40-49 years
			Total	15-17 years	18-19 years					
Number										
Total . . . . .	2,940,609	8,778	381,104	137,136	243,968	791,366	920,536	604,632	204,020	30,173
Smoker . . . . .	528,040	614	77,694	23,908	53,786	171,222	161,580	87,750	25,519	3,661
Nonsmoker . . . . .	2,181,514	7,353	272,901	101,855	171,046	557,863	687,781	469,599	162,035	23,982
Not stated . . . . .	231,055	811	30,509	11,373	19,136	62,281	71,175	47,283	16,466	2,530
White										
Total . . . . .	2,327,837	3,232	250,064	81,779	168,285	600,634	765,076	512,704	171,437	24,690
Smoker . . . . .	437,234	456	66,429	20,354	46,075	142,091	132,787	71,694	20,743	3,034
Nonsmoker . . . . .	1,710,437	2,386	163,167	54,224	108,943	411,991	574,510	401,734	137,069	19,580
Not stated . . . . .	180,166	390	20,468	7,201	13,267	46,552	57,779	39,276	13,625	2,076
Black										
Total . . . . .	516,139	5,372	121,215	51,827	69,388	167,805	125,256	69,260	23,492	3,739
Smoker . . . . .	80,994	137	9,602	2,974	6,628	25,989	26,109	14,445	4,180	532
Nonsmoker . . . . .	392,009	4,824	102,164	44,907	57,257	127,747	88,235	48,787	17,337	2,915
Not stated . . . . .	43,136	411	9,449	3,946	5,503	14,069	10,912	6,028	1,975	292
Percent										
Smoker <sup>1</sup> . . . . .	19.5	7.7	22.2	19.0	23.9	23.5	19.0	15.7	13.6	13.2
White . . . . .	20.4	16.0	28.9	27.3	29.7	25.6	18.8	15.1	13.1	13.4
Black . . . . .	17.1	2.8	8.6	6.2	10.4	16.9	22.8	22.8	19.4	15.4
Percent distribution										
All races <sup>1</sup>										
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1-5 cigarettes . . . . .	19.2	34.0	23.8	26.8	22.5	19.4	18.0	17.5	16.9	15.7
6-10 cigarettes . . . . .	38.7	42.5	42.4	43.1	42.1	39.8	37.8	36.5	35.0	33.0
11-15 cigarettes . . . . .	6.8	5.2	5.7	5.2	5.9	6.7	7.3	7.1	6.6	5.9
16-20 cigarettes . . . . .	28.8	16.1	24.5	21.7	25.7	28.6	30.0	30.2	30.7	31.9
21-30 cigarettes . . . . .	4.4	*	2.6	2.2	2.8	3.9	4.8	5.8	6.7	7.7
31-40 cigarettes . . . . .	1.8	*	1.0	0.8	1.0	1.3	1.9	2.6	3.6	5.1
41 cigarettes or more . . . . .	0.3	*	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.7
White										
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1-5 cigarettes . . . . .	16.6	29.2	20.8	23.5	19.5	16.4	15.7	15.5	15.1	14.0
6-10 cigarettes . . . . .	37.8	43.8	42.6	43.8	42.1	39.0	36.4	35.1	33.7	31.3
11-15 cigarettes . . . . .	7.4	6.4	6.1	5.6	6.3	7.4	7.9	7.7	7.0	6.3
16-20 cigarettes . . . . .	31.0	18.3	26.5	23.6	27.8	31.3	32.3	31.9	32.0	33.3
21-30 cigarettes . . . . .	5.0	*	2.9	2.4	3.1	4.4	5.4	6.6	7.7	8.6
31-40 cigarettes . . . . .	1.9	*	1.0	0.9	1.1	1.4	2.0	2.8	4.0	5.7
41 cigarettes or more . . . . .	0.3	*	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.8
Black										
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1-5 cigarettes . . . . .	31.6	48.7	42.7	47.0	40.8	34.6	28.7	26.2	24.2	23.8
6-10 cigarettes . . . . .	43.5	38.7	41.1	38.9	42.1	44.1	44.7	42.7	41.5	42.8
11-15 cigarettes . . . . .	3.9	*	2.7	2.5	2.7	3.4	4.3	4.5	4.6	*
16-20 cigarettes . . . . .	17.9	*	11.8	10.1	12.5	15.4	18.9	22.6	24.9	24.2
21-30 cigarettes . . . . .	1.7	*	0.9	0.8	0.9	1.3	1.8	2.1	2.6	*
31-40 cigarettes . . . . .	1.2	*	0.7	*	0.7	0.9	1.3	1.5	1.8	*
41 cigarettes or more . . . . .	0.3	*	*	*	*	0.3	0.3	0.4	*	*

<sup>1</sup>Includes races other than white and black

NOTE: Excludes data for California, Indiana, Louisiana, Nebraska, New York, Oklahoma, and South Dakota, which did not require reporting of tobacco use during pregnancy.

**Table 3. Number of live births by smoking status of mother and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 42 reporting States and the District of Columbia, 1989**

Smoking status and origin of mother	Age of mother									
	All ages	Under 15 years	15-19 years			20-24 years	25-29 years	30-34 years	35-39 years	40-49 years
			Total	15-17 years	18-19 years					
All origins <sup>1</sup>										
Total	2,922,800	8,772	379,779	136,761	243,018	787,164	914,114	600,312	202,673	29,986
Smoker	524,095	614	77,177	23,763	53,414	169,922	160,301	87,104	25,344	3,633
Nonsmoker	2,167,715	7,347	272,101	101,627	170,474	554,977	682,654	465,940	160,871	23,825
Not stated	230,990	811	30,501	11,371	19,130	62,265	71,159	47,268	16,458	2,528
Hispanic										
Total	268,014	1,230	47,207	18,594	28,613	85,731	74,209	41,423	15,264	2,950
Smoker	18,216	59	3,270	1,160	2,110	6,106	4,972	2,738	904	167
Nonsmoker	209,260	944	36,410	14,347	22,063	66,504	58,266	32,690	12,102	2,344
Not stated	40,538	227	7,527	3,087	4,440	13,121	10,971	5,995	2,258	439
Number										
Mexican	159,130	786	29,363	11,551	17,812	52,490	42,703	23,496	8,635	1,657
Smoker	8,107	29	1,390	486	904	2,691	2,201	1,288	422	86
Nonsmoker	120,551	587	22,193	8,716	13,477	39,845	32,374	17,768	6,539	1,245
Not stated	30,472	170	5,780	2,349	3,431	9,954	8,128	4,440	1,674	326
Puerto Rican	32,100	210	7,363	3,050	4,313	11,405	7,868	3,793	1,232	229
Smoker	4,255	13	925	340	585	1,607	1,060	487	146	17
Nonsmoker	25,072	170	5,794	2,434	3,360	8,766	6,147	3,007	989	199
Not stated	2,773	27	644	276	368	1,032	661	299	97	13
Cuban	9,378	8	665	261	404	2,110	3,635	2,081	753	126
Smoker	632	-	57	18	39	162	230	132	44	7
Nonsmoker	8,505	8	598	241	357	1,911	3,299	1,890	683	116
Not stated	241	-	10	2	8	37	106	59	26	3
Central and South American	26,997	41	2,223	734	1,489	7,258	8,876	5,826	2,300	473
Smoker	897	-	63	17	46	210	283	239	89	13
Nonsmoker	23,814	37	1,967	655	1,312	6,423	7,814	5,108	2,039	426
Not stated	2,286	4	193	62	131	625	779	479	172	34
Other and unknown Hispanic	40,409	185	7,593	2,998	4,595	12,468	11,127	6,227	2,344	465
Smoker	4,325	17	835	299	536	1,436	1,198	592	203	44
Nonsmoker	31,318	142	5,858	2,301	3,557	9,559	8,632	4,917	1,852	358
Not stated	4,766	26	900	398	502	1,473	1,297	718	289	63
Non-Hispanic										
Total <sup>2</sup>	2,595,151	7,376	325,253	115,543	209,710	685,816	821,459	546,176	182,804	26,267
Smoker	499,811	545	72,906	22,296	50,610	161,787	153,535	83,482	24,144	3,412
Nonsmoker	1,936,212	6,335	233,117	86,307	146,810	483,188	617,538	428,087	146,807	21,140
Not stated	159,128	496	19,230	6,940	12,290	40,841	50,386	34,607	11,853	1,715
White	2,008,890	1,991	199,195	62,196	136,999	503,260	673,168	458,504	151,713	21,059
Smoker	411,160	392	61,997	18,863	43,134	133,353	125,379	67,780	19,460	2,799
Nonsmoker	1,480,747	1,461	126,306	39,856	86,450	342,071	508,455	362,765	122,767	16,922
Not stated	116,983	138	10,892	3,477	7,415	27,836	39,334	27,959	9,486	1,338
Black	497,009	5,231	117,311	50,206	67,105	161,683	120,270	66,383	22,541	3,590
Smoker	79,459	133	9,373	2,896	6,477	25,489	25,646	14,182	4,111	525
Nonsmoker	381,793	4,747	100,070	44,029	56,041	124,532	85,606	47,222	16,793	2,823
Not stated	35,757	351	7,868	3,281	4,587	11,662	9,018	4,979	1,637	242

See footnotes at end of table.

Table 3. Number of live births by smoking status of mother and percent smokers, by age and Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 42 reporting States and the District of Columbia, 1989—Con.

Smoking status and origin of mother	Age of mother									
	All ages	Under 15 years	15–19 years			20–24 years	25–29 years	30–34 years	35–39 years	40–49 years
			Total	15–17 years	18–19 years					
Smokers										
All origins <sup>1</sup>	19.5	7.7	22.1	19.0	23.9	23.4	19.0	15.7	13.6	13.2
Hispanic	8.0	5.9	8.2	7.5	8.7	8.4	7.9	7.7	7.0	6.7
Mexican	6.3	4.7	5.9	5.3	6.3	6.3	6.4	6.8	6.1	6.5
Puerto Rican	14.5	*	13.8	12.3	14.8	15.5	14.7	13.9	12.9	*
Cuban	6.9	*	8.7	*	9.8	7.8	6.5	6.5	6.1	*
Central and South American	3.6	*	3.1	*	3.4	3.2	3.5	4.5	4.2	*
Other and unknown Hispanic	12.1	*	12.5	11.5	13.1	13.1	12.2	10.7	9.9	10.9
Percent										
Non-Hispanic <sup>2</sup>	20.5	7.9	23.8	20.5	25.6	25.1	19.9	16.3	14.1	13.9
White	21.7	21.2	32.9	32.1	33.3	28.0	19.8	15.7	13.7	14.2
Black	17.2	2.7	8.6	6.2	10.4	17.0	23.1	23.1	19.7	15.7

<sup>1</sup>Includes origin not stated.

<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, Louisiana, Nebraska, New Hampshire, New York, Oklahoma, and South Dakota, which did not require reporting of either Hispanic origin of mother or tobacco use during pregnancy.

**Table 4. Number of live births, percent of mothers who smoked cigarettes during pregnancy, and percent distribution by average number of cigarettes smoked by mothers per day, according to educational attainment and race of mother: Total of 42 reporting States and the District of Columbia, 1989**

Smoking measure and race of mother	Total	Years of school completed by mother					
		0-8 years	9-11 years	12 years	13-15 years	16 years or more	Not stated
All births							
All races <sup>1</sup> . . . . .	2,865,249	117,472	469,418	1,099,292	567,021	494,172	117,874
White . . . . .	2,621,296	91,270	321,283	856,077	460,723	438,908	93,035
Black . . . . .	513,230	19,098	134,192	213,590	91,164	34,864	20,322
Percent							
Smoker <sup>1</sup> . . . . .	19.4	20.8	35.0	22.2	13.6	5.0	18.0
White . . . . .	20.3	23.5	40.6	23.7	13.8	5.0	18.2
Black . . . . .	17.1	12.8	22.7	17.0	13.4	6.8	21.2
Percent distribution							
All races <sup>1</sup>							
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less . . . . .	57.8	52.0	55.5	57.6	61.4	69.8	58.7
11-20 cigarettes . . . . .	35.6	38.0	37.1	36.2	33.0	25.7	34.8
21 cigarettes or more . . . . .	6.6	10.0	7.2	6.3	5.6	4.5	6.5
White							
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less . . . . .	54.3	49.2	51.0	54.1	58.6	68.7	54.5
11-20 cigarettes . . . . .	38.5	40.0	40.8	39.1	35.2	26.4	38.0
21 cigarettes or more . . . . .	7.2	10.8	8.2	6.9	6.2	4.8	7.5
Black							
Smoker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
10 cigarettes or less . . . . .	75.1	71.3	74.0	76.0	76.0	78.3	70.3
11-20 cigarettes . . . . .	21.8	24.3	22.2	21.4	21.5	19.8	26.1
21 cigarettes or more . . . . .	3.1	4.3	3.9	2.6	2.5	1.9	3.6

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, Louisiana, Nebraska, New York, Oklahoma, South Dakota, and Washington, which did not require reporting of either tobacco use during pregnancy or educational attainment of mother.

Table 5. Percent low birth weight by smoking status, age, and race of mother: Total of 43 reporting States and the District of Columbia, 1989

[Low birth weight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

Smoking status and race of mother	Age of mother									
	All ages	Under 15 years	15-19 years			20-24 years	25-29 years	30-34 years	35-39 years	40-49 years
			Total	15-17 years	18-19 years					
All races <sup>1</sup> . . . . .	7.2	14.0	9.5	10.5	9.0	7.4	6.3	6.5	7.2	8.6
Smoker . . . . .	11.4	15.6	11.0	11.6	10.7	10.6	11.1	12.6	14.3	15.7
Nonsmoker . . . . .	6.0	13.8	9.0	10.1	8.3	6.3	5.0	5.2	6.0	7.4
Not stated . . . . .	8.3	14.5	11.0	11.7	10.6	8.2	7.3	7.7	8.4	9.7
White . . . . .	5.8	10.6	7.7	8.4	7.4	5.9	5.1	5.4	6.1	7.6
Smoker . . . . .	9.5	14.0	10.1	10.8	9.7	8.9	9.0	10.2	11.8	14.0
Nonsmoker . . . . .	4.7	9.8	6.6	7.4	6.2	4.7	4.2	4.4	5.2	6.5
Not stated . . . . .	6.7	11.1	8.9	9.3	8.7	6.4	5.9	6.5	7.2	9.0
Black . . . . .	13.5	16.1	13.4	13.8	13.1	12.9	13.5	14.4	14.8	15.1
Smoker . . . . .	21.6	21.9	17.7	17.0	18.0	19.8	22.4	24.3	27.1	25.6
Nonsmoker . . . . .	11.7	15.8	12.8	13.4	12.3	11.4	10.7	11.4	11.7	13.2
Not stated . . . . .	15.1	17.8	15.6	16.1	15.2	14.2	15.0	15.8	16.7	15.1

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, Indiana, Louisiana, Nebraska, New York, Oklahoma, and South Dakota, which did not require reporting of tobacco use during pregnancy.

Table 6. Number of live births by drinking status of mother, percent drinkers, and percent distribution by average number of drinks per week, according to age and race of mother: Total of 44 reporting States and the District of Columbia, 1989

Drinking status, drinking measure, and race of mother	Age of mother									
	All ages	Under 15 years	15-19 years							
			Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years
All races <sup>1</sup>		Number								
Total . . . . .	3,024,078	8,900	392,911	141,096	251,815	816,274	946,879	619,716	208,511	30,797
Drinker . . . . .	114,923	98	8,057	2,345	5,712	25,724	38,263	30,276	10,979	1,526
Nondrinker . . . . .	2,660,875	8,038	352,098	126,613	225,485	723,541	832,130	538,655	179,862	26,551
Not stated . . . . .	248,280	854	32,756	12,138	20,618	67,009	76,486	50,785	17,670	2,720
White		Number								
Total . . . . .	2,401,537	3,340	259,463	84,728	174,735	622,341	789,130	526,473	175,538	25,252
Drinker . . . . .	91,293	56	5,966	1,697	4,269	18,633	30,406	25,495	9,436	1,301
Nondrinker . . . . .	2,115,254	2,858	231,189	75,227	155,962	553,137	696,312	458,658	151,396	21,704
Not stated . . . . .	194,990	426	22,308	7,804	14,504	50,571	62,412	42,320	14,706	2,247
Black		Number								
Total . . . . .	525,129	5,475	123,574	52,827	70,747	170,842	127,258	70,386	23,806	3,788
Drinker . . . . .	20,400	32	1,699	503	1,196	6,215	6,869	4,120	1,294	171
Nondrinker . . . . .	459,798	5,024	112,102	48,251	63,851	149,995	108,985	59,912	20,464	3,316
Not stated . . . . .	44,931	419	9,773	4,073	5,700	14,632	11,404	6,354	2,048	301
		Percent								
Drinker <sup>1</sup> . . . . .	4.1	1.2	2.2	1.8	2.5	3.4	4.4	5.3	5.8	5.4
White . . . . .	4.1	1.9	2.5	2.2	2.7	3.3	4.2	5.3	5.9	5.7
Black . . . . .	4.2	0.6	1.5	1.0	1.8	4.0	5.9	6.4	5.9	4.9
All races <sup>1</sup>		Percent distribution								
Drinker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less . . . . .	61.0	57.4	61.4	61.4	61.4	59.5	61.8	61.6	60.7	54.8
2 drinks . . . . .	17.7	*	16.4	16.2	16.5	17.6	17.3	18.3	18.2	19.5
3-4 drinks . . . . .	10.5	*	10.6	11.3	10.2	10.8	10.3	10.2	11.0	12.6
5 drinks or more . . . . .	10.8	*	11.6	11.1	11.9	12.2	10.6	9.9	10.2	13.1
White		Percent distribution								
Drinker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less . . . . .	65.2	*	64.8	63.8	65.2	64.8	66.6	65.2	63.2	56.8
2 drinks . . . . .	17.1	*	15.4	14.8	15.7	16.5	16.7	17.9	18.0	19.6
3-4 drinks . . . . .	9.4	*	10.0	11.0	9.6	9.4	8.7	9.4	10.3	12.3
5 drinks or more . . . . .	8.3	*	9.7	10.3	9.5	9.3	7.9	7.5	8.4	11.3
Black		Percent distribution								
Drinker . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 drink or less . . . . .	42.3	*	50.8	54.3	49.3	45.3	39.9	39.2	40.4	40.9
2 drinks . . . . .	20.8	*	20.2	21.5	19.7	20.7	20.6	22.1	20.2	18.2
3-4 drinks . . . . .	15.7	*	12.1	12.6	11.9	14.2	17.6	15.4	17.0	*
5 drinks or more . . . . .	21.3	*	15.4	11.6	19.1	19.8	21.9	23.3	22.4	26.4

<sup>1</sup>Includes races other than white and black.

NOTE: Excludes data for California, Louisiana, Nebraska, New York, Oklahoma, and South Dakota, which did not require reporting of alcohol use during pregnancy.

Table 7. Number of live births by drinking status of mother and percent drinkers, by Hispanic origin of mother and by race of mother for mothers of non-Hispanic origin: Total of 43 reporting States and the District of Columbia, 1989

Drinking status of mother	All origins <sup>1</sup>	Origin of mother								
		Hispanic						Non-Hispanic		
		Total	Mexican	Puerto Rican	Cuban	Central and South American	Other and unknown Hispanic	Total <sup>2</sup>	White	Black
Number										
Total	3,006,269	269,604	160,315	32,290	9,386	27,064	40,549	2,676,689	2,080,815	505,936
Drinker	113,765	4,817	2,276	956	95	360	1,130	107,256	84,296	19,914
Nondrinker	2,644,395	221,711	125,902	28,414	9,043	24,377	33,975	2,396,533	1,867,942	448,654
Not stated	248,109	43,076	32,137	2,920	248	2,327	5,444	172,900	128,577	37,368
Percent										
Drinker	4.1	2.1	1.8	3.3	1.0	1.5	3.2	4.3	4.3	4.2

<sup>1</sup>Includes origin not stated.

<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California, Louisiana, Nebraska, New Hampshire, New York, Oklahoma, and South Dakota, which did not require reporting of either alcohol use during pregnancy or Hispanic origin of mother.

Table 8. Number of live births and percent distribution by weight gain during pregnancy and median weight gain, according to period of gestation and race of mother: Total of 46 reporting States and the District of Columbia, 1989

Period of gestation and race of mother	All births	Weight gain during pregnancy									Median weight gain
		Total	Less than 16 pounds	16-20 pounds	21-25 pounds	26-30 pounds	31-35 pounds	36-40 pounds	41-45 pounds	46 pounds or more	
All races <sup>1</sup>											
All gestational periods <sup>2</sup>	3,326,613	100.0	9.4	11.6	16.1	20.9	14.7	12.2	6.0	9.1	30.3
Under 37 weeks	351,275	100.0	17.8	16.2	16.7	18.0	10.9	9.0	4.3	7.1	25.9
37-39 weeks	1,336,184	100.0	9.2	12.0	17.0	21.5	14.7	11.9	5.6	8.2	30.2
40 weeks and over	1,614,352	100.0	7.9	10.3	15.3	21.0	15.5	13.1	6.6	10.3	30.6
White											
All gestational periods	2,626,486	100.0	8.0	10.8	16.2	21.4	15.5	12.7	6.2	9.1	30.5
Under 37 weeks	228,554	100.0	14.5	15.3	17.3	18.9	12.1	9.8	4.7	7.5	27.2
37-39 weeks	1,044,245	100.0	7.9	11.2	17.1	22.1	15.5	12.3	5.8	8.1	30.3
40 weeks and over	1,335,840	100.0	7.0	9.7	15.3	21.4	16.1	13.5	6.8	10.2	30.7
Black											
All gestational periods <sup>2</sup>	588,459	100.0	15.9	15.0	15.4	18.1	11.1	10.1	4.9	9.4	27.8
Under 37 weeks	111,023	100.0	25.4	18.4	15.1	15.6	8.4	7.3	3.3	6.5	24.1
37-39 weeks	242,313	100.0	14.6	15.0	16.2	18.8	11.4	10.3	4.8	8.8	28.0
40 weeks and over	229,110	100.0	13.0	13.5	14.8	18.5	12.0	11.3	5.7	11.3	30.1

<sup>1</sup>Includes races other than white and black.

<sup>2</sup>Includes births with period of gestation not stated.

NOTE: Excludes data for California, Louisiana, Nebraska, and Oklahoma, which did not require reporting of weight gain during pregnancy.

Table 9. Percent low birth weight by weight gain during pregnancy, by period of gestation, and race of mother: Total of 46 reporting States and the District of Columbia, 1989

[Low birth weight is defined as weight of less than 2,500 grams (5 lb 8oz)]

Period of gestation and race of mother	Weight gain during pregnancy									
	Total	Less than 16 pounds	16-20 pounds	21-25 pounds	26-30 pounds	31-35 pounds	36-40 pounds	41-45 pounds	46 pounds or more	Not stated
All gestational periods <sup>1</sup>										
All races <sup>2</sup> . . . . .	7.2	15.7	10.4	6.8	5.1	4.1	4.0	3.9	4.1	10.2
White . . . . .	5.8	12.6	8.8	5.8	4.4	3.6	3.5	3.4	3.7	7.9
Black . . . . .	13.5	23.8	16.6	11.9	9.5	7.8	7.2	6.7	6.3	17.1
Under 37 weeks										
All races <sup>2</sup> . . . . .	41.4	57.5	46.5	38.4	33.5	30.7	30.3	30.5	30.1	47.0
White . . . . .	39.9	57.0	46.4	38.0	33.2	30.6	30.5	30.6	31.0	44.8
Black . . . . .	45.3	59.0	48.0	40.0	35.2	31.9	30.6	31.2	28.6	50.8
37-39 weeks										
All races <sup>2</sup> . . . . .	4.7	8.4	6.5	4.8	3.8	3.3	3.1	3.2	3.4	5.8
White . . . . .	4.0	7.1	5.6	4.1	3.3	2.9	2.8	2.9	3.1	4.6
Black . . . . .	7.9	11.9	9.6	7.8	6.4	5.6	5.0	4.8	4.8	9.3
40 weeks and over										
All races <sup>2</sup> . . . . .	1.7	3.6	2.8	1.8	1.3	1.1	1.0	0.9	1.0	2.3
White . . . . .	1.3	2.8	2.2	1.5	1.1	0.9	0.9	0.8	0.9	1.7
Black . . . . .	3.8	6.8	5.4	3.7	3.0	2.4	2.3	2.0	1.7	4.6

<sup>1</sup>Includes births with period of gestation not stated.

<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California, Louisiana, Nebraska, and Oklahoma, which did not require reporting of weight gain during pregnancy.

**Table 10. Percent low birth weight by weight gain during pregnancy, and Hispanic origin of mother, and by race of mother for mothers of non-Hispanic origin: Total of 45 reporting States and the District of Columbia, 1989**

[Low birth weight is defined as weight of less than 2,500 grams (5 lb 8 oz)]

<i>Origin of mother</i>	<i>Total</i>	<i>Weight gain during pregnancy</i>								
		<i>Less than 16 pounds</i>	<i>16–20 pounds</i>	<i>21–25 pounds</i>	<i>26–30 pounds</i>	<i>31–35 pounds</i>	<i>36–40 pounds</i>	<i>41–45 pounds</i>	<i>46 pounds or more</i>	<i>Not stated</i>
All origins <sup>1</sup> . . . . .	7.2	15.7	10.4	6.8	5.1	4.1	4.0	3.9	4.1	10.2
Hispanic . . . . .	6.8	12.3	8.3	6.1	4.8	4.1	3.8	4.1	4.0	8.2
Mexican . . . . .	6.0	10.8	7.2	5.5	4.4	3.6	3.4	3.9	3.7	6.9
Puerto Rican . . . . .	9.6	17.4	10.9	7.9	6.5	5.5	5.5	4.8	4.9	12.6
Cuban . . . . .	5.8	15.0	7.7	5.3	5.2	4.0	2.5	3.6	3.9	9.6
Central and South American . . . . .	5.9	10.7	8.5	5.4	4.0	3.8	3.9	3.5	3.9	6.9
Other and unknown Hispanic . . . . .	7.2	13.0	9.2	6.8	5.0	4.4	3.7	4.4	4.1	9.5
Non-Hispanic <sup>2</sup> . . . . .	7.2	16.1	10.6	6.9	5.1	4.2	4.0	3.8	4.2	10.9
White . . . . .	5.7	12.7	8.9	5.8	4.3	3.6	3.5	3.4	3.7	8.0
Black . . . . .	13.6	24.0	16.7	12.0	9.6	7.8	7.2	6.7	6.3	17.5

<sup>1</sup>Includes origin not stated.<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for California, Louisiana, Nebraska, New Hampshire, and Oklahoma, which did not require reporting of either weight gain during pregnancy or Hispanic origin of mother.

**Table 11. Live births with selected obstetric procedures and rates for selected obstetric procedures, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989**

[Rates are number of live births with specified procedure per 1,000 live births in specified group]

Obstetric procedure and race of mother	All births <sup>1</sup>	Obstetric procedure reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
<b>All races<sup>2</sup></b>				<b>Rate</b>						<b>Number</b>
Amniocentesis . . . . .	3,896,605	118,871	32.3	12.4	15.4	17.8	32.4	162.3	200.2	212,395
Electronic fetal monitoring . . . . .	3,896,605	2,521,640	684.4	702.8	690.7	686.4	674.4	657.3	641.7	212,395
Induction of labor . . . . .	3,896,605	333,071	90.4	77.5	87.7	93.9	93.2	97.1	108.2	212,395
Stimulation of labor . . . . .	3,896,605	402,107	109.1	105.3	107.6	111.6	110.2	107.9	108.5	212,395
Tocolysis . . . . .	3,896,605	59,018	16.0	18.8	16.9	15.0	14.9	15.8	14.9	212,395
Ultrasound <sup>3</sup> . . . . .	3,706,297	1,669,223	477.2	458.3	470.4	481.0	483.6	497.5	496.7	208,632
<b>White</b>				<b>Rate</b>						<b>Number</b>
Amniocentesis . . . . .	3,090,834	101,919	34.8	13.0	15.8	18.2	34.2	173.9	214.9	162,682
Electronic fetal monitoring . . . . .	3,090,834	2,019,588	689.7	708.0	695.4	693.1	680.6	663.3	648.2	162,682
Induction of labor . . . . .	3,090,834	283,532	96.8	85.8	95.2	99.5	97.7	101.6	113.4	162,682
Stimulation of labor . . . . .	3,090,834	326,300	111.4	107.9	110.0	113.6	112.0	110.4	111.0	162,682
Tocolysis . . . . .	3,090,834	46,483	15.9	18.9	16.8	14.8	15.0	15.8	15.2	162,682
Ultrasound <sup>3</sup> . . . . .	2,949,182	1,363,344	488.9	472.3	482.6	491.7	493.4	506.5	507.3	160,774
<b>Black</b>				<b>Rate</b>						<b>Number</b>
Amniocentesis . . . . .	636,865	11,759	19.8	11.1	14.1	16.3	22.0	91.8	125.5	43,109
Electronic fetal monitoring . . . . .	636,865	405,170	682.4	698.7	686.3	673.3	669.0	666.6	665.2	43,109
Induction of labor . . . . .	636,865	39,652	66.8	60.8	63.2	69.0	73.0	84.0	99.6	43,109
Stimulation of labor . . . . .	636,865	59,777	100.7	100.8	100.7	101.6	99.6	98.5	101.9	43,109
Tocolysis . . . . .	636,865	10,519	17.7	18.8	18.4	17.2	15.6	17.6	15.4	43,109
Ultrasound <sup>3</sup> . . . . .	593,447	242,287	438.8	428.4	432.9	440.4	450.1	478.7	483.3	41,347

<sup>1</sup>Total number of births to residents of areas reporting specified obstetric procedure.

<sup>2</sup>Includes races other than white and black.

<sup>3</sup>Illinois does not report this procedure.

NOTE: Excludes data for Louisiana, Nebraska, and Oklahoma, which did not require reporting of obstetric procedures.

Table 12. Live births with selected complications of labor and/or delivery and rates for selected complications, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989

[Rates are number of live births with specified complication per 1,000 live births in specified group]

Complication and race of mother	All births <sup>1</sup>	Complication reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
All races <sup>2</sup>				Rate						Number
Febrile . . . . .	3,896,605	40,991	11.2	15.2	11.9	10.5	9.6	9.4	8.8	231,990
Meconium, moderate/heavy <sup>3</sup> . . . . .	3,876,999	230,155	63.1	70.5	64.4	60.3	60.5	63.8	71.1	230,514
Premature rupture of membrane . . . . .	3,896,605	131,165	35.8	36.5	34.3	34.9	36.6	40.4	44.2	231,990
Abruptio placenta . . . . .	3,896,605	24,418	6.7	6.6	6.4	6.4	6.9	7.8	10.5	231,990
Placenta previa . . . . .	3,896,605	13,340	3.6	1.4	2.3	3.6	5.1	7.3	9.2	231,990
Other excessive bleeding . . . . .	3,896,605	22,268	6.1	5.8	5.9	5.9	6.2	7.2	8.6	231,990
Seizures during labor . . . . .	3,896,605	1,899	0.5	1.0	0.6	0.4	0.3	0.4	0.6	231,990
Precipitous labor . . . . .	3,896,605	69,591	19.0	14.9	18.1	19.1	21.1	22.5	21.8	231,990
Prolonged labor . . . . .	3,896,605	43,916	12.0	13.5	12.6	11.7	11.0	11.3	12.0	231,990
Dysfunctional labor . . . . .	3,896,605	108,640	29.6	29.0	29.2	30.0	29.2	31.5	34.4	231,990
Breech/Malpresentation . . . . .	3,896,605	143,043	39.0	31.4	34.1	39.8	44.3	49.1	56.0	231,990
Cephalopelvic disproportion <sup>4,5</sup> . . . . .	3,430,329	130,528	39.5	39.5	39.6	40.9	38.1	38.2	37.3	128,827
Cord prolapse <sup>6</sup> . . . . .	3,794,500	9,558	2.7	2.4	2.5	2.7	2.9	3.3	3.8	233,633
Anesthetic complication <sup>5</sup> . . . . .	3,588,941	2,159	0.6	0.5	0.6	0.6	0.7	0.8	0.8	132,873
Fetal distress <sup>3,5</sup> . . . . .	3,569,335	156,848	45.6	52.3	46.6	43.2	42.1	48.3	62.3	131,382
White				Rate						Number
Febrile . . . . .	3,090,834	29,608	10.2	13.3	10.9	9.7	9.0	9.1	8.1	180,032
Meconium, moderate/heavy <sup>3</sup> . . . . .	3,074,062	168,536	58.2	63.2	59.0	56.0	56.9	60.2	68.2	178,844
Premature rupture of membrane . . . . .	3,090,834	100,262	34.4	34.7	32.5	33.7	35.3	39.9	43.6	180,032
Abruptio placenta . . . . .	3,090,834	18,865	6.5	6.6	6.2	6.1	6.8	7.6	10.2	180,032
Placenta previa . . . . .	3,090,834	10,330	3.5	1.4	2.3	3.4	4.9	6.9	8.6	180,032
Other excessive bleeding . . . . .	3,090,834	17,473	6.0	6.0	5.9	5.8	6.0	6.9	8.6	180,032
Seizures during labor . . . . .	3,090,834	1,370	0.5	0.9	0.6	0.4	0.3	0.4	0.6	180,032
Precipitous labor . . . . .	3,090,834	52,589	18.1	12.9	16.4	18.1	20.6	22.6	21.6	180,032
Prolonged labor . . . . .	3,090,834	36,019	12.4	14.4	13.3	12.0	11.2	11.6	12.4	180,032
Dysfunctional labor . . . . .	3,090,834	89,266	30.7	30.9	30.5	30.8	29.7	32.2	35.3	180,032
Breech/Malpresentation . . . . .	3,090,834	119,389	41.0	35.0	36.3	41.2	45.4	49.7	57.0	180,032
Cephalopelvic disproportion <sup>4,5</sup> . . . . .	2,693,792	106,890	41.1	41.4	42.3	42.4	38.8	38.7	36.8	94,085
Cord prolapse <sup>6</sup> . . . . .	3,021,191	7,461	2.6	2.4	2.4	2.6	2.8	3.1	3.7	181,405
Anesthetic complication <sup>5</sup> . . . . .	2,832,718	1,766	0.6	0.6	0.6	0.6	0.7	0.8	0.8	97,344
Fetal distress <sup>3,5</sup> . . . . .	2,815,946	118,894	43.7	52.0	45.4	41.3	39.8	45.7	59.7	96,141
Black				Rate						Number
Febrile . . . . .	636,865	9,451	16.0	19.4	16.2	14.6	13.8	11.7	12.5	45,259
Meconium, moderate/heavy <sup>3</sup> . . . . .	635,036	52,707	89.3	87.9	86.8	90.5	92.0	96.9	99.5	45,018
Premature rupture of membrane . . . . .	636,865	25,865	43.7	40.8	41.7	44.3	48.9	50.7	56.4	45,259
Abruptio placenta . . . . .	636,865	4,624	7.8	6.7	7.3	8.4	8.6	10.3	11.2	45,259
Placenta previa . . . . .	636,865	2,274	3.8	1.6	2.7	4.7	6.7	8.4	10.6	45,259
Other excessive bleeding . . . . .	636,865	3,061	5.2	4.4	4.6	5.5	6.5	7.0	5.6	45,259
Seizures during labor . . . . .	636,865	437	0.7	1.1	0.6	0.7	0.5	*	*	45,259
Precipitous labor . . . . .	636,865	13,338	22.5	18.7	23.6	24.2	23.9	22.2	18.5	45,259
Prolonged labor . . . . .	636,865	5,592	9.5	10.9	9.5	8.4	9.0	9.1	7.5	45,259
Dysfunctional labor . . . . .	636,865	15,118	25.6	25.0	24.8	25.6	26.6	28.5	32.3	45,259
Breech/Malpresentation . . . . .	636,865	17,969	30.4	23.5	26.5	32.6	39.5	46.2	54.5	45,259
Cephalopelvic disproportion <sup>4,5</sup> . . . . .	577,460	17,617	32.2	36.2	30.9	31.7	30.0	29.9	32.4	30,370
Cord prolapse <sup>6</sup> . . . . .	606,924	1,754	3.1	2.6	3.0	3.1	3.7	4.4	5.4	45,517
Anesthetic complication <sup>5</sup> . . . . .	593,896	314	0.6	0.4	0.5	0.6	0.7	*	*	31,077
Fetal distress <sup>3,5</sup> . . . . .	592,067	31,738	56.6	54.2	52.9	57.3	60.3	71.9	81.7	30,836

<sup>1</sup>Total number of births to residents of areas reporting specified complication.

<sup>2</sup>Includes races other than white and black.

<sup>3</sup>Nevada does not report this complication.

<sup>4</sup>New York City (but not New York State) reports this complication.

<sup>5</sup>Texas does not report this complication.

<sup>6</sup>North Carolina does not report this complication.

NOTE: Excludes data for Louisiana, Nebraska, and Oklahoma, which did not require reporting of complications of labor and/or delivery.

**Table 13. Live births by method of delivery, and rates of cesarean delivery and vaginal birth after previous cesarean delivery, by age and race of mother: Total of 45 reporting States and the District of Columbia, 1989**

Age and race of mother	All births	Births by method of delivery						Cesarean delivery rate			Rate of vaginal birth after previous cesarean <sup>4</sup>
		Vaginal			Cesarean			Total <sup>1</sup>	Primary <sup>2</sup>	Repeat <sup>3</sup>	
		Total	After previous cesarean	Not stated	Total	Primary	Repeat				
All races <sup>5</sup>	3,798,734	2,793,463	71,019	826,955	521,873	305,082	178,316	22.8	16.1	36.9	18.9
Under 20 years	484,420	382,328	3,451	77,801	66,844	10,957	24,291	16.9	15.0	14.1	24.0
20-24 years	1,009,739	762,217	15,993	198,722	134,697	64,025	48,800	20.7	15.3	32.2	20.0
25-29 years	1,187,826	867,694	24,192	265,121	161,382	103,739	55,011	23.4	16.1	39.1	18.9
30-34 years	795,041	563,775	19,796	195,305	107,529	87,776	35,961	25.7	16.5	44.9	18.4
35-39 years	278,117	189,120	6,778	76,714	43,108	33,606	12,283	28.9	19.1	43.8	16.8
40-49 years	43,591	28,329	809	13,292	8,313	4,979	1,970	31.9	23.2	37.5	14.0
White	3,022,537	2,212,843	56,851	667,114	418,177	248,937	142,580	23.2	16.2	37.3	18.6
Under 20 years	326,975	256,981	1,851	53,035	46,370	6,665	16,959	17.1	15.4	12.6	21.7
20-24 years	779,397	585,932	11,457	155,649	107,097	48,552	37,816	21.0	15.7	31.2	19.1
25-29 years	984,147	717,483	19,952	221,033	134,323	86,710	45,631	23.6	16.1	39.2	18.7
30-34 years	666,304	472,528	17,037	163,557	88,878	74,679	30,219	25.7	16.3	45.7	18.6
35-39 years	230,502	156,979	5,873	63,209	34,932	28,277	10,314	28.7	18.8	44.7	17.2
40-49 years	35,212	22,940	681	10,631	6,577	4,054	1,641	31.7	22.8	38.1	14.4
Black	611,147	452,921	11,104	127,907	82,695	45,212	30,319	22.0	15.8	35.3	19.7
Under 20 years	143,251	113,263	1,493	23,068	19,005	4,063	6,920	16.9	14.5	17.6	26.9
20-24 years	195,335	147,519	3,943	37,942	23,899	14,043	9,874	20.5	14.3	37.0	21.9
25-29 years	151,603	109,427	3,301	34,553	20,553	14,000	7,623	24.0	16.2	40.5	19.1
30-34 years	86,147	59,786	1,752	22,040	12,786	9,254	4,321	26.9	18.1	42.0	15.9
35-39 years	29,855	19,809	545	8,692	5,377	3,315	1,354	30.5	21.8	38.1	14.1
40-49 years	4,956	3,117	70	1,612	1,075	537	227	34.1	26.1	33.3	11.5

<sup>1</sup>Percent of all live births by cesarean delivery.

<sup>2</sup>Number of primary cesareans per 100 live births to women who have not had a previous cesarean.

<sup>3</sup>Percent of all cesareans that are repeat cesareans.

<sup>4</sup>Number of vaginal births after previous cesarean delivery per 100 live births to women with a previous cesarean delivery.

<sup>5</sup>Includes races other than white and black.

NOTE: Excludes data for Louisiana, Maryland, Nebraska, Nevada, and Oklahoma, which did not require reporting of method of delivery.

Table 14. Rates of cesarean delivery and vaginal birth after previous cesarean delivery, by selected medical risk factors, complications of labor and/or delivery, and obstetric procedures: Total of 45 reporting States and the District of Columbia, 1989

Medical risk factor, complication, and obstetric procedure	All births with specified condition and/or procedure	Cesarean delivery rate			Rate of vaginal birth after previous cesarean <sup>4</sup>
		Total <sup>1</sup>	Primary <sup>2</sup>	Repeat <sup>3</sup>	
Medical risk factors					
Anemia . . . . .	67,514	25.9	18.4	37.6	19.2
Cardiac disease . . . . .	12,710	26.2	19.2	35.4	22.0
Acute or chronic lung disease . . . . .	10,826	29.1	21.1	37.4	19.8
Diabetes . . . . .	75,609	37.8	28.1	38.2	13.1
Genital herpes <sup>5,6</sup> . . . . .	26,033	46.9	41.6	24.3	22.7
Hydramnios/Oligohydramnios <sup>5</sup> . . . . .	19,542	46.8	41.8	21.0	15.2
Hemoglobinopathy <sup>7</sup> . . . . .	1,640	28.6	21.1	35.8	22.0
Hypertension, chronic . . . . .	26,204	41.5	32.8	33.6	12.8
Eclampsia . . . . .	15,726	52.1	48.4	15.6	11.9
Incompetent cervix <sup>5</sup> . . . . .	8,843	31.7	24.1	34.4	20.8
Renal disease . . . . .	9,744	29.0	22.1	32.7	18.9
Rh sensitization <sup>7</sup> . . . . .	21,381	24.6	17.2	38.3	19.9
Uterine bleeding <sup>6</sup> . . . . .	30,546	34.7	27.1	32.7	17.2
Complications of labor and/or delivery					
Febrile . . . . .	39,799	36.4	34.3	13.3	38.8
Premature rupture of membrane . . . . .	128,153	29.7	26.3	17.7	28.5
Abruptio placenta . . . . .	23,888	56.5	52.6	18.3	16.2
Placenta previa . . . . .	12,981	82.2	78.4	24.6	3.3
Other excessive bleeding . . . . .	21,651	25.5	19.2	32.9	25.7
Seizures during labor . . . . .	1,722	48.3	44.7	15.4	14.2
Precipitous labor (less than 3 hours) . . . . .	68,081	1.7	1.3	24.5	84.9
Prolonged labor (more than 20 hours) . . . . .	42,695	42.3	41.4	7.3	40.3
Dysfunctional labor . . . . .	106,844	63.8	62.1	11.0	18.4
Breech/Malpresentation . . . . .	140,309	83.9	82.6	12.8	5.1
Cephalopelvic disproportion <sup>8,9</sup> . . . . .	127,284	97.7	97.5	13.4	0.9
Cord prolapse <sup>10</sup> . . . . .	9,259	68.0	66.2	10.6	10.8
Anesthetic complications <sup>9</sup> . . . . .	1,991	56.5	47.7	33.2	10.2
Fetal distress <sup>9</sup> . . . . .	154,135	62.9	61.1	10.8	16.8
Obstetric procedures					
Electronic fetal monitoring . . . . .	2,463,276	21.4	16.3	30.7	25.8
Induction of labor . . . . .	325,291	22.4	21.1	10.0	50.4
Stimulation of labor . . . . .	392,684	18.6	17.4	10.9	58.3
Tocolysis . . . . .	57,739	30.5	24.6	27.9	22.0
Ultrasound <sup>11</sup> . . . . .	1,636,821	27.2	19.2	38.1	18.1

<sup>1</sup>Percent of all live births by cesarean delivery.<sup>2</sup>Number of primary cesareans per 100 live births to women who have not had a previous cesarean.<sup>3</sup>Percent of all cesareans that are repeat cesareans.<sup>4</sup>Number of vaginal births after previous cesarean delivery per 100 live births to women with a previous cesarean delivery.<sup>5</sup>New York City (but not New York State) reports this risk factor.<sup>6</sup>Texas does not report this risk factor.<sup>7</sup>Kansas does not report this risk factor.<sup>8</sup>New York City (but not New York State) reports this complication.<sup>9</sup>Texas does not report this complication.<sup>10</sup>North Carolina does not report this complication.<sup>11</sup>Illinois does not report this procedure.

NOTE: Excludes data for Louisiana, Maryland, Nebraska, Nevada, and Oklahoma, which did not require reporting of either method of delivery, medical risk factors, complications of labor and/or delivery or obstetric procedures.

Table 15. Live births by day of week and index of occurrence by method of delivery, day of week, and race of mother: Total of 45 reporting States and the District of Columbia, 1989

Day of week and race of mother	All births	Total <sup>2</sup>	Index of occurrence <sup>1</sup>			
			Vaginal	Method of delivery		
				Total	Cesarean Primary	Repeat
All races <sup>3</sup>	3,798,734	100.0	100.0	100.0	100.0	100.0
Sunday	447,898	81.2	87.3	60.7	73.1	39.5
Monday	550,925	101.8	100.5	106.0	97.9	120.0
Tuesday	588,409	108.7	106.3	116.5	111.6	124.9
Wednesday	581,230	107.4	105.2	114.6	111.0	120.8
Thursday	578,959	107.0	104.8	114.0	110.5	120.0
Friday	584,747	108.0	104.4	120.3	113.7	131.4
Saturday	466,566	86.2	91.8	68.6	82.6	44.5
White	3,022,537	100.0	100.0	100.0	100.0	100.0
Sunday	348,984	79.5	86.0	58.4	71.5	36.5
Monday	439,835	102.1	100.7	106.8	98.1	121.4
Tuesday	471,843	109.6	106.9	117.7	112.7	126.1
Wednesday	465,586	108.1	105.9	115.3	111.6	121.7
Thursday	463,203	107.6	105.4	114.4	110.9	120.2
Friday	468,929	108.9	105.1	121.6	114.5	133.5
Saturday	364,157	84.6	90.3	66.6	81.3	41.9
Black	611,147	100.0	100.0	100.0	100.0	100.0
Sunday	78,082	88.0	93.0	70.8	79.6	54.8
Monday	87,284	100.2	99.4	102.6	96.7	113.6
Tuesday	91,682	105.3	103.8	111.0	107.1	118.3
Wednesday	91,117	104.7	102.6	111.7	108.9	116.7
Thursday	90,976	104.5	102.0	112.8	109.1	119.5
Friday	91,098	104.6	101.8	114.2	110.5	120.9
Saturday	80,908	92.9	97.6	77.4	88.5	57.2

<sup>1</sup>Index is the ratio of the average number of births by a specified method of delivery on a given day of the week to the average daily number of births by a specified method of delivery for the year, multiplied by 100.

<sup>2</sup>Includes method of delivery not stated.

<sup>3</sup>Includes races other than white and black.

NOTE: Excludes data for Louisiana, Maryland, Nebraska, Nevada, and Oklahoma, which did not require reporting of method of delivery.

**Table 16. Live births with selected abnormal conditions of the newborn and rates for selected abnormal conditions of the newborn, by age and race of mother: Total of 47 reporting States and the District of Columbia, 1989**

[Rates are number of live births with specified abnormal condition per 1,000 live births in specified group]

Abnormal condition and race of mother	All births <sup>1</sup>	Abnormal condition reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
<b>All races<sup>2</sup></b>										
	Number			Rate						Number
Anemia . . . . .	3,896,605	7,139	2.0	2.5	2.1	1.8	1.7	1.8	1.6	256,288
Birth injury <sup>3</sup> . . . . .	3,497,418	6,578	2.0	2.0	2.0	2.0	1.9	1.9	2.1	156,921
Fetal alcohol syndrome <sup>4,5</sup> . . . . .	3,665,991	611	0.2	0.1	0.2	0.2	0.2	0.2	*	253,905
Hyaline membrane disease/RDS . . . . .	3,896,605	21,417	5.9	7.6	6.3	5.5	5.1	5.5	5.8	256,288
Meconium aspiration syndrome <sup>5</sup> . . . . .	3,737,993	11,149	3.2	3.5	3.2	3.0	3.1	3.6	4.3	252,667
Assisted ventilation less than 30 minutes <sup>6</sup> . . . . .	3,605,156	38,298	11.4	12.3	11.3	11.3	10.9	11.8	13.1	252,290
Assisted ventilation 30 minutes or longer <sup>6</sup> . . . . .	3,605,156	23,141	6.9	9.0	7.1	6.3	6.3	6.8	8.1	252,290
Seizures . . . . .	3,896,605	3,888	1.1	1.2	1.0	1.0	1.1	1.2	1.2	256,288
<b>White</b>										
Anemia . . . . .	3,090,834	5,177	1.8	2.3	1.9	1.7	1.7	1.7	1.6	200,011
Birth injury <sup>3</sup> . . . . .	2,753,029	5,726	2.2	2.4	2.3	2.2	2.0	1.9	2.3	117,673
Fetal alcohol syndrome <sup>4,5</sup> . . . . .	2,889,255	351	0.1	0.1	0.1	0.1	0.1	0.2	*	198,327
Hyaline membrane disease/RDS . . . . .	3,090,834	17,177	5.9	8.0	6.3	5.5	5.2	5.5	6.1	200,011
Meconium aspiration syndrome <sup>5</sup> . . . . .	2,951,908	8,403	3.1	3.2	3.0	2.9	3.0	3.5	3.9	197,112
Assisted ventilation less than 30 minutes <sup>6</sup> . . . . .	2,875,053	30,740	11.5	12.5	11.5	11.4	10.9	11.8	13.2	197,616
Assisted ventilation 30 minutes or longer <sup>6</sup> . . . . .	2,875,053	17,480	6.5	8.8	6.7	6.0	6.0	6.5	8.2	197,616
Seizures . . . . .	3,090,834	2,852	1.0	1.1	0.9	0.9	1.0	1.1	1.1	200,011
<b>Black</b>										
Anemia . . . . .	636,865	1,717	2.9	3.2	3.1	2.6	2.6	2.6	*	48,947
Birth injury <sup>3</sup> . . . . .	585,540	583	1.1	1.1	0.9	1.0	1.2	1.5	*	34,277
Fetal alcohol syndrome <sup>4,5</sup> . . . . .	613,505	199	0.4	0.2	0.3	0.4	0.5	*	*	48,308
Hyaline membrane disease/RDS . . . . .	636,865	3,738	6.4	6.9	6.4	6.1	5.9	6.2	5.9	48,947
Meconium aspiration syndrome <sup>5</sup> . . . . .	620,429	2,352	4.1	4.0	3.9	4.0	4.4	5.3	8.2	48,292
Assisted ventilation less than 30 minutes <sup>6</sup> . . . . .	573,608	6,019	11.4	11.9	10.8	11.5	11.6	12.3	16.4	47,174
Assisted ventilation 30 minutes or longer <sup>6</sup> . . . . .	573,608	4,917	9.3	9.5	9.0	9.1	9.9	10.1	10.9	47,174
Seizures . . . . .	636,865	895	1.5	1.3	1.4	1.7	1.7	1.8	*	48,947

<sup>1</sup>Total number of births to residents of areas reporting specified condition.<sup>2</sup>Includes races other than white and black.<sup>3</sup>Massachusetts and Texas do not report this condition.<sup>4</sup>Wisconsin does not report this condition.<sup>5</sup>New York City ( but not New York State) reports this condition.<sup>6</sup>New York State and New York City do not report this condition.

NOTE: Excludes data for Louisiana, Nebraska, and Oklahoma, which did not require reporting of abnormal conditions of the newborn.

**Table 17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 45 reporting States and the District of Columbia, 1989**

[Rates are number of live births with specified congenital anomaly per 100,000 live births in specified group]

Congenital anomaly and race of mother	All births <sup>1</sup>	Congenital anomaly reported	All ages	Age of mother						Not stated
				Under 20 years	20-24 years	25-29 years	30-34 years	35-39 years	40-49 years	
<b>All races<sup>2</sup></b>										
	Number			Rate						Number
Anencephalus . . . . .	3,577,803	670	20.2	21.6	22.4	20.0	17.4	18.4	*	253,639
Spina bifida/Meningocele . . . . .	3,577,803	1,014	30.5	31.2	32.6	30.5	28.9	25.5	*	253,639
Hydrocephalus . . . . .	3,577,803	1,026	30.6	40.5	32.1	30.0	24.6	24.7	*	253,639
Microcephalus . . . . .	3,577,803	402	12.1	12.8	11.2	13.2	10.2	13.0	*	253,639
Other central nervous system anomalies . . . . .	3,577,803	1,087	32.7	36.5	35.2	30.8	29.5	31.4	*	253,639
Heart malformations . . . . .	3,577,803	4,621	139.0	133.4	132.9	135.2	140.9	169.2	229.2	253,639
Other circulatory/respiratory anomalies . . . . .	3,577,803	5,292	159.2	156.7	160.5	156.9	155.2	175.9	191.0	253,639
Rectal atresia/stenosis . . . . .	3,577,803	458	13.8	18.1	13.3	11.6	13.7	17.2	*	253,639
Tracheo-esophageal fistula/Esophage atresia . . . . .	3,577,803	488	14.7	11.6	14.7	14.5	15.7	18.0	*	253,639
Omphalocele/Gastroschisis . . . . .	3,577,803	946	28.5	53.9	34.2	22.5	18.2	18.0	*	253,639
Other gastrointestinal anomalies . . . . .	3,577,803	1,458	43.9	49.5	42.9	43.6	39.0	51.5	*	253,639
Malformed genitalia . . . . .	3,577,803	2,965	89.2	93.2	90.9	87.3	85.1	94.6	95.5	253,639
Renal agenesis . . . . .	3,577,803	407	12.2	13.0	12.2	12.5	11.6	10.9	*	253,639
Other urogenital anomalies . . . . .	3,577,803	5,072	152.6	149.5	148.9	158.8	151.5	147.8	152.8	253,639
Cleft lip/palate . . . . .	3,577,803	3,460	104.1	106.9	108.7	103.1	97.1	105.9	106.4	253,639
Polydactyly/Syndactyly/Adactyly . . . . .	3,577,803	3,562	107.2	148.8	123.0	93.3	87.8	89.2	106.4	253,639
Club foot . . . . .	3,577,803	2,332	70.2	74.4	73.2	70.2	64.0	69.9	62.8	253,639
Diaphragmatic hernia . . . . .	3,577,803	499	15.0	16.7	15.3	13.1	16.3	14.7	*	253,639
Other musculoskeletal/integumental anomalies . . . . .	3,577,803	8,477	255.0	262.0	250.3	246.9	255.8	290.6	270.1	253,639
Down's syndrome . . . . .	3,577,803	1,945	58.5	42.3	38.4	48.6	66.2	125.2	442.0	253,639
Other chromosomal anomalies . . . . .	3,577,803	1,875	56.4	48.8	50.0	52.9	55.5	90.0	196.4	253,639
<b>White</b>										
Anencephalus . . . . .	2,852,565	537	20.2	22.4	23.1	19.3	18.8	16.1	*	197,415
Spina bifida/Meningocele . . . . .	2,852,565	868	32.7	36.8	35.6	32.2	29.7	26.6	*	197,415
Hydrocephalus . . . . .	2,852,565	845	31.8	44.8	34.6	31.2	24.9	25.1	*	197,415
Microcephalus . . . . .	2,852,565	309	11.6	13.1	10.1	11.8	10.7	15.1	*	197,415
Other central nervous system anomalies . . . . .	2,852,565	886	33.4	38.2	37.0	31.3	28.5	33.7	*	197,415
Heart malformations . . . . .	2,852,565	3,807	143.4	140.5	138.1	137.9	143.1	177.4	231.7	197,415
Other circulatory/respiratory anomalies . . . . .	2,852,565	4,448	167.5	180.1	172.3	162.7	156.7	182.4	184.7	197,415
Rectal atresia/stenosis . . . . .	2,852,565	369	13.9	19.6	14.0	12.1	12.6	17.6	*	197,415
Tracheo-esophageal fistula/Esophageal atresia . . . . .	2,852,565	424	16.0	15.2	14.8	15.5	17.4	20.1	*	197,415
Omphalocele/Gastroschisis . . . . .	2,852,565	740	27.9	56.1	35.3	22.3	17.4	16.6	*	197,415
Other gastrointestinal anomalies . . . . .	2,852,565	1,130	42.6	49.2	43.2	41.1	36.8	51.8	*	197,415
Malformed genitalia . . . . .	2,852,565	2,506	94.4	101.2	97.8	90.6	89.8	101.0	104.1	197,415
Renal agenesis . . . . .	2,852,565	327	12.3	14.5	13.0	12.1	10.9	11.1	*	197,415
Other urogenital anomalies . . . . .	2,852,565	4,430	166.8	172.5	166.2	171.0	162.3	155.3	171.3	197,415
Cleft lip/palate . . . . .	2,852,565	3,022	113.8	127.7	120.3	110.8	103.6	115.1	104.1	197,415
Polydactyly/Syndactyly/Adactyly . . . . .	2,852,565	1,994	75.1	86.1	82.7	72.5	65.1	69.8	97.4	197,415
Club foot . . . . .	2,852,565	2,038	76.8	87.1	80.0	75.9	69.9	76.4	*	197,415
Diaphragmatic hernia . . . . .	2,852,565	417	15.7	18.6	16.3	13.9	16.1	15.6	*	197,415
Other musculoskeletal/integumental anomalies . . . . .	2,852,565	6,904	260.0	273.1	256.0	250.8	257.2	302.0	268.6	197,415
Down's syndrome . . . . .	2,852,565	1,686	63.5	49.9	42.1	51.1	70.9	129.1	470.1	197,415
Other chromosomal anomalies . . . . .	2,852,565	1,511	56.9	52.3	50.2	53.9	53.7	89.4	191.4	197,415

See footnotes at end of table.

**Table 17. Live births with selected congenital anomalies and rates for selected congenital anomalies, by age and race of mother: Total of 45 reporting States and the District of Columbia, 1989—Con.**

[Rates are number of live births with specified congenital anomaly per 100,000 live births in specified group]

Congenital anomaly and race of mother	All births <sup>1</sup>	Congenital anomaly reported	All ages	Age of mother						Not stated
				Under 20 years	20–24 years	25–29 years	30–34 years	35–39 years	40–49 years	
		Number		Rate						Number
<b>Black</b>										
Anencephalus . . . . .	573,082	104	19.8	22.1	18.9	24.1	*	*	*	48,145
Spina bifida/Meningocele . . . . .	573,082	117	22.3	20.5	20.6	23.3	29.4	*	*	48,145
Hydrocephalus . . . . .	573,082	151	28.8	33.1	23.6	29.5	28.0	*	*	48,145
Microcephalus . . . . .	573,082	80	15.2	*	14.7	26.4	*	*	*	48,145
Other central nervous system anomalies . . . . .	573,082	153	29.1	31.5	28.3	28.7	33.5	*	*	48,145
Heart malformations . . . . .	573,082	630	120.0	112.6	112.0	123.5	130.0	152.6	*	48,145
Other circulatory/respiratory anomalies . . . . .	573,082	629	119.8	97.7	114.4	124.3	152.3	136.1	*	48,145
Rectal atresia/stenosis . . . . .	573,082	69	13.1	*	*	*	*	*	*	48,145
Tracheo-esophageal fistula/Esophageal atresia . . . . .	573,082	47	9.0	*	14.7	*	*	*	*	48,145
Omphalocele/Gastroschisis . . . . .	573,082	175	33.3	45.7	31.8	29.5	*	*	*	48,145
Other gastrointestinal anomalies . . . . .	573,082	267	50.9	45.7	43.6	61.4	57.3	*	*	48,145
Malformed genitalia . . . . .	573,082	377	71.8	75.6	70.2	77.7	61.5	*	*	48,145
Renal agenesis . . . . .	573,082	66	12.6	*	*	*	*	*	*	48,145
Other urogenital anomalies . . . . .	573,082	490	93.3	99.3	87.3	94.0	95.0	99.0	*	48,145
Cleft lip/palate . . . . .	573,082	239	45.5	48.8	49.5	39.6	48.9	*	*	48,145
Polydactyly/Syndactyly/Adactyly . . . . .	573,082	1,469	279.8	300.9	294.2	243.2	280.9	272.2	*	48,145
Club foot . . . . .	573,082	242	46.1	47.3	50.1	45.8	33.5	*	*	48,145
Diaphragmatic hernia . . . . .	573,082	66	12.6	*	*	*	*	*	*	48,145
Other musculoskeletal/integumental anomalies . . . . .	573,082	1,193	227.3	226.9	227.0	219.1	246.0	214.5	*	48,145
Down's syndrome . . . . .	573,082	199	37.9	26.8	24.8	36.5	37.7	127.9	*	48,145
Other chromosomal anomalies . . . . .	573,082	295	56.2	41.7	52.5	52.8	79.7	*	*	48,145

<sup>1</sup>Total number of births to residents of areas reporting specified congenital anomaly.

<sup>2</sup>Includes races other than white and black.

NOTE: Excludes data for Louisiana, Nebraska, New Mexico, New York, and Oklahoma, which did not require reporting of congenital anomalies.

## Technical notes

### Source of data

Data shown in this report are based on 100 percent of the birth certificates in all States and the District of Columbia. The data are provided to the National Center for Health Statistics through the Vital Statistics Cooperative Program. Information in this report on selected maternal and infant health characteristics was derived from items on the 1989 revision of the U.S. Standard Certificate of Live Birth (figure 1).

### Race of mother

Birth data are tabulated by the race of the mother as reported directly on the birth certificate. If race of mother was not stated, it was imputed as that of the father, if known. If neither race was stated, race of mother was imputed as the race of the mother on the preceding record with known race.

### Definitions of medical terms

The following definitions are adapted and abbreviated from a set of definitions compiled by a committee of Federal and State health statistics officials for the Association for Vital Records and Health Statistics (24).

### Medical risk factors for this pregnancy

*Anemia.* — Hemoglobin level of less than 10.0 g/dL during pregnancy, or a hematocrit of less than 30 percent during pregnancy.

*Cardiac disease.* — Disease of the heart.

*Acute or chronic lung disease.* — Disease of the lungs during pregnancy.

*Diabetes.* — Metabolic disorder characterized by excessive discharge of urine and persistent thirst; includes juvenile onset, adult onset, and gestational diabetes during pregnancy.

*Genital herpes.* — Infection of the skin of the genital area by herpes simplex virus.

*Hydramnios/Oligohydramnios.* — Any noticeable excess (hydramnios) or

lack (oligohydramnios) of amniotic fluid.

*Hemoglobinopathy.* — A blood disorder caused by alteration in the genetically determined molecular structure of hemoglobin (for example, sickle cell anemia).

*Hypertension, chronic.* — Blood pressure persistently greater than 140/90, diagnosed prior to onset of pregnancy or before the 20th week of gestation.

*Hypertension, pregnancy-associated.* — An increase in blood pressure of at least 30 mm hg systolic or 15 mm hg diastolic on two measurements taken 6 hours apart after the 20th week of gestation.

*Eclampsia.* — The occurrence of convulsions and/or coma unrelated to other cerebral conditions in women with signs and symptoms of pre-eclampsia.

*Incompetent cervix.* — Characterized by painless dilation of the cervix in the second trimester or early in the third trimester of pregnancy, with premature expulsion of membranes through the cervix and ballooning of the membranes into the vagina, followed by rupture of the membranes and subsequent expulsion of the fetus.

*Previous infant 4,000+ grams.* — The birth weight of a previous live-born child was over 4,000 grams (8 lbs 14 oz).

*Previous preterm or small-for-gestational-age infant.* — Previous birth of an infant prior to term (before 37 completed weeks of gestation), or of an infant weighing less than the 10th percentile for gestational age, using a standard weight for age chart.

*Renal disease.* — Kidney disease.

*Rh sensitization.* — The process or state of becoming sensitized to the Rh factor as when an Rh-negative woman is pregnant with an Rh-positive fetus.

*Uterine bleeding.* — Any clinically significant bleeding during the pregnancy, taking into consideration the stage of pregnancy; any second or third trimester bleeding of the uterus prior to the onset of labor.

### Obstetric procedures

*Amniocentesis.* — Surgical transabdominal perforation of the uterus to obtain amniotic fluid to be used in the

detection of genetic disorders, fetal abnormalities, and fetal lung maturity.

*Electronic fetal monitoring.* — Monitoring with external devices applied to the maternal abdomen or with internal devices with an electrode attached to the fetal scalp and a catheter through the cervix into the uterus, to detect and record fetal heart tones and uterine contractions.

*Induction of labor.* — The initiation of uterine contractions before the spontaneous onset of labor by medical and/or surgical means for the purpose of delivery.

*Stimulation of labor.* — Augmentation of previously established labor by use of oxytocin.

*Tocolysis.* — Use of medications to inhibit preterm uterine contractions to extend the length of pregnancy and, therefore, avoid a preterm birth.

*Ultrasound.* — Visualization of the fetus and the placenta by means of sound waves.

### Complications of labor and/or delivery

*Febrile.* — A fever greater than 100 degrees F. or 38 C. occurring during labor and/or delivery.

*Meconium, moderate/heavy.* — Meconium consists of undigested debris from swallowed amniotic fluid, various products of secretion, and excretion and shedding by the gastrointestinal tract; moderate to heavy amounts of meconium in the amniotic fluid noted during labor and/or delivery.

*Premature rupture of membranes (more than 12 hours).* — Rupture of the membranes at any time during pregnancy and more than 12 hours before the onset of labor.

*Abruptio placenta.* — Premature separation of a normally-implanted placenta from the uterus.

*Placenta previa.* — Implantation of the placenta over or near the internal opening of the cervix.

*Other excessive bleeding.* — The loss of a significant amount of blood from conditions other than abruptio placenta or placenta previa.

*Seizures during labor.* — Maternal seizures occurring during labor from any cause.

*Precipitous labor (less than 3 hours).*—Extremely rapid labor and delivery lasting less than 3 hours.

*Prolonged labor (more than 20 hours).*—Abnormally slow progress of labor lasting more than 20 hours.

*Dysfunctional labor.*—Failure to progress in a normal pattern of labor.

*Breech/Malpresentation.*—At birth, the presentation of the fetal buttocks rather than the head, or other malpresentation.

*Cephalopelvic disproportion.*—The relationship of the size, presentation, and position of the fetal head to the maternal pelvis, which prevents dilation of the cervix and/or descent of the fetal head.

*Cord prolapse.*—Premature expulsion of the umbilical cord in labor before the fetus is delivered.

*Anesthetic complications.*—Any complication during labor and/or delivery brought on by an anesthetic agent or agents.

*Fetal distress.*—Signs indicating fetal hypoxia (deficiency in amount of oxygen reaching fetal tissues).

### Abnormal conditions of the newborn

*Anemia.*—Hemoglobin level of less than 13.0 g/dL, or a hematocrit of less than 39 percent.

*Birth injury.*—Impairment of the infant's body function or structure due to adverse influences that occurred at birth.

*Fetal alcohol syndrome.*—A syndrome of altered prenatal growth and development occurring in infants born of women who consumed excessive amounts of alcohol during pregnancy.

*Hyaline membrane disease/RDS.*—A disorder primarily of prematurity, manifested clinically by respiratory distress and pathologically by pulmonary hyaline membranes and incomplete expansion of the lungs at birth.

*Meconium aspiration syndrome.*—Aspiration of meconium by the fetus or newborn, affecting the lower respiratory system.

*Assisted ventilation (less than 30 minutes).*—A mechanical method of assisting respiration for newborns with respiratory failure.

*Assisted ventilation (30 minutes or more).*—Newborn placed on assisted ventilation for 30 minutes or longer.

*Seizures.*—A seizure of any etiology.

### Congenital anomalies of child

*Anencephalus.*—Absence of the cerebral hemispheres.

*Spina bifida/Meningocele.*—Developmental anomaly characterized by defective closure of the bony encasement of the spinal cord, through which the cord and meninges may or may not protrude.

*Hydrocephalus.*—Excessive accumulation of cerebrospinal fluid within the ventricles of the brain with consequent enlargement of the cranium.

*Microcephalus.*—A significantly small head.

*Other central nervous system anomalies.*—Other specified anomalies of the brain, spinal cord, and nervous system.

*Heart malformations.*—Congenital anomalies of the heart.

*Other circulatory/respiratory anomalies.*—Other specified anomalies of the circulatory and respiratory systems.

*Rectal atresia/stenosis.*—Congenital absence, closure, or narrowing of the rectum.

*Tracheo-esophageal fistula/Esophageal atresia.*—An abnormal passage between the trachea and the esophagus; esophageal atresia is the congenital absence or closure of the esophagus.

*Omphalocele/Gastroschisis.*—An omphalocele is a protrusion of variable amounts of abdominal viscera from a midline defect at the base of the umbilicus. In gastroschisis, the abdominal viscera protrude through an abdominal wall defect, usually on the right side of the umbilical cord insertion.

*Other gastrointestinal anomalies.*—Other specified congenital anomalies of the gastrointestinal system.

*Malformed genitalia.*—Congenital anomalies of the reproductive organs.

*Renal agenesis.*—One or both kidneys are completely absent.

*Other urogenital anomalies.*—Other specified congenital anomalies of the organs concerned in the production and excretion of urine, together with organs of reproduction.

*Cleft lip/palate.*—Cleft lip is a fissure or elongated opening of the lip; cleft palate is a fissure in the roof of the mouth. These are failures of embryonic development.

*Polydactyly/Syndactyly, Adactyly.*—Polydactyly is the presence of more than five digits on either hands and/or feet; syndactyly is having fused or webbed fingers and/or toes; adactyly is the absence of fingers and/or toes.

*Club foot.*—Deformities of the foot, which is twisted out of shape or position.

*Diaphragmatic hernia.*—Herniation of the abdominal contents through the diaphragm into the thoracic cavity, usually resulting in respiratory distress.

*Other musculoskeletal/integumental anomalies.*—Other specified congenital anomalies of the muscles, skeleton, or skin.

*Down's syndrome.*—The most common chromosomal defect with most cases resulting from an extra chromosome (trisomy 21).

*Other chromosomal anomalies.*—All other chromosomal aberrations.

### Method of delivery

Several rates are computed for method of delivery. The overall cesarean section rate or *total cesarean rate* is computed as the percent of all births that were delivered by cesarean section. The *primary cesarean rate* is a measure that relates the number of women having a primary cesarean delivery to all women giving birth who have never had a cesarean delivery. The denominator for this rate includes all births, less those with method of delivery classified as repeat cesarean, vaginal birth after previous cesarean, or method not stated. The *repeat cesarean rate* is the percent of all cesarean deliveries that were to women having their second (or subsequent) cesarean delivery. The rate for *vaginal birth after previous cesarean (VBAC) delivery* is computed by relating all VBAC deliveries to the sum of VBAC and repeat cesarean deliveries, that is, to women with a previous cesarean section.

## Computation of percent, percent distributions, and medians

Births with unknown medical and life-style risk factors of pregnancy and birth, obstetric procedures, abnormal conditions and congenital anomalies of infant, and method of delivery were subtracted from the figures for total births that were used as denominators before percents, percent distributions, and medians were computed. Computations of median weight gain were based on ungrouped data. An asterisk is shown in place of any derived statistic based on fewer than 20 births in the numerator or denominator.

## Random variation

Although the birth data in this report are not subject to sampling error, they may be affected by random variation in the number of births involved. Many of the checkbox items refer to extremely rare events. When the number of events is small, perhaps less than 100, and the probability of such an event is small, considerable caution must be observed in interpreting the data.

This report presents summary tabulations on new data from the 1989 birth certificate. More detailed tabulations for 1989 will be published in *Vital Statistics of the United States, Volume I—Natality*. Prior to the publication of that volume, the National Center for Health Statistics will respond to requests for unpublished data whenever possible.

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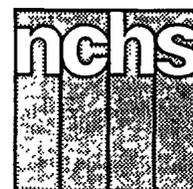
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# Monthly Vital Statistics Report



Final Data From the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

## Mortality by Occupation, Industry, and Cause of Death: 12 Reporting States, 1984

by Harry M. Rosenberg, Ph.D, National Center for Health Statistics;  
Carol Burnett, M.S., National Institute for Occupational Safety and Health; Jeff Maurer, M.S.,  
National Center for Health Statistics; and Robert Spirtas, Dr. P.H., National Cancer Institute

### Contents

Introduction.....	1
Methods.....	2
Data sources.....	2
Analytical measures.....	2
Results.....	3
Mortality by occupation... ..	3
Mortality by industry .....	4
Discussion.....	7
References .....	9
List of detailed tables .....	11
Technical notes .....	62

### Introduction

This report presents statistics on mortality by occupation and industry from information reported on death certificates. The report illustrates how this multi-State data base can be used to identify possible associations between occupational factors and health outcomes, as measured by mortality. The report is a collaborative effort of the National Center for Health Statistics (NCHS), the National Institute for Occupational Safety and Health (NIOSH), the National Cancer Institute (NCI), and the State vital statistics offices. The U.S. Bureau of the Census provided assistance in developing and evaluating the coding procedures for occupation and industry from the death certificate (1).

Previous studies on occupational mortality using information from the death certificate have been carried out for the United States as a whole and

for selected States. Such studies are often carried out around the time of a national census, which can provide the detailed population needed to produce population-based measures of risk (2-6). Accordingly, early studies of U.S. occupational mortality were made in connection with the census of population. The first U.S. study was made for 1890, and studies were reported for each census through 1930. The most recent national study of U.S. occupational mortality was carried out using data for 1950 (2-6). One report (3) also summarized information from the previous studies of 1890, 1900, and 1930.

The 1950 report was limited to white males and males of other races, shown separately, for ages 20-64 years. Apart from the reports carried out by NCHS and its predecessor agencies, NIOSH has published numerous State reports of occupational mortality, for example, Washington (7), California

NOTE: Although Dr. Spirtas was with the National Cancer Institute at the time this report was written, he is currently with the National Institute of Child Health and Human Development.

### Acknowledgments

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National Center for Health Statistics



(8), and Rhode Island (9). As part of its surveillance programs, NIOSH also has supported the development of State-based occupational mortality surveillance systems. Reports from New York (10), Pennsylvania (11), South Carolina (12), Kentucky (13), and Utah (14) are illustrative of these initiatives. Recently, California published a report that included data for 1979–81 (15). A study on socioeconomic differentials in mortality using 1960 census and vital statistics data included selected information on occupational mortality for white males aged 25–74 years and all other males aged 25–64 years (16). In addition, decennial reports of occupational mortality have been produced regularly for England and Wales (17).

## Methods

### Data sources

This report is based on information for all 269,797 deaths occurring in a 12-State reporting area in 1984 to residents of that area that were 20 years of age and over. The 12 reporting States are Colorado, Georgia, Kansas, Kentucky, Maine, Missouri, Nebraska, Nevada, New Hampshire, Rhode Island, South Carolina, and Wisconsin. Mortality is shown separately for males and females. Occupation and industry mortality data for 1985–91 are available on public-use data tapes (see Technical notes).

Data are based on information reported on death certificates submitted to the State vital registration offices in the 12 reporting States, in accordance with the laws and statutes of the respective States. These data were provided to NCHS on magnetic tape from the States from copies of the original certificates of death.

Occupation and industry of the decedent are the "usual occupation" and "kind of business or industry" reported on the certificate, based on information provided by informants to the funeral director who has legal responsibility for completing this information and filing the death certificate with the State vital registration office. The handbook *Guidelines for Reporting Occupation and Industry on Death Cer-*

*tificates* serves as an aid to funeral directors in obtaining information and filling out the occupation and industry items on the death certificate (18).

Occupation and industry on the death certificates were classified according to U.S. Bureau of the Census publications (19,20), using a special adaptation of coding procedures developed with the U.S. Bureau of the Census for occupation and industry information reported on the death certificate (21) (see Technical notes). Although the reported occupations and industries were coded and classified according to the most detailed category (three-digit category) of the U.S. Bureau of the Census classification, they are presented in this report according to a list of 46 selected occupations and a list of 42 selected industries developed by the collaborating agencies.

Causes of death are coded and classified according to the *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* (22) and are presented in this report according to a special list of 52 selected causes of death developed by the collaborating agencies for analyzing occupational mortality (see Technical notes). Cause-of-death titles and category numbers shown in the figures and detailed tables may be abbreviated (see Technical notes for complete titles and category numbers). The list includes 13 of the 15 leading causes of death in the United States, along with a number of causes of special interest in relation to occupational exposures, particularly malignant neoplasms of selected sites. The other two leading causes of death—Congenital anomalies and Certain conditions originating in the perinatal period—are deleted from the list.

### Analytical measures

Data are presented using percent distributions and proportionate mortality ratios (PMR's). These ratios, which are expressed in relation to an index of 100, show the proportion of deaths for a particular occupation or industry category for a specific cause of death in relation to all occupations

or industries combined (represented by a PMR of 100) for that specific cause of death. The PMR's in this report have been standardized for age and race. For method of computation see Technical notes.

The PMR compares the observed number of deaths for an occupation (or industry) and a cause of death with the number expected had the distribution of deaths by cause and by 5-year age groups for males and females for all occupations (industries) prevailed in that occupation (or industry). A PMR of 100 indicates that the proportion of deaths from a particular cause of death and an occupation (or industry) is exactly the same as that of the general population for all occupations or industries combined. A PMR less than 100 indicates a lower proportion than the general population for all occupations (or industries), and a PMR greater than 100 indicates a higher proportion than the general population. A PMR greater than 100 is usually interpreted as representing a greater relative risk of death. Thus, the PMR is 200 for males whose occupation was Painters, construction and maintenance (OC No. 579) and who died of Malignant neoplasms of lip, oral cavity, and pharynx (ICD-9 Nos. 140–149) (table 1). This means that for males of this occupational group, the proportion of deaths from this cause was twice that expected on the basis of males in all occupational groups combined for this cause of death.

Because PMR's, like other measures, are affected by random variation (especially for small numbers of deaths), they have been tested for statistical significance (23) at two levels, indicated in the tables by the letter "A" representing the 5-percent level of statistical significance ( $p < 0.05$ ) and the letter "B" representing the 1-percent level of significance ( $p < 0.01$ ). Whether a PMR is statistically significant at the "A" or "B" level is a reflection of the size of the PMR and of the number of events involved. Thus, a PMR close to 100 may be significant if the number of events observed is large, although, in contrast, a PMR departing substantially from 100 may not be statistically significant if the number of deaths involved is small.

**Table A. Number of deaths and percent distribution by major occupations, according to sex: Total of 12 reporting States, 1984**

[Data include only deaths to residents of the 12-State reporting area occurring in the area. For a listing of reporting States, see Technical notes]

Occupation	Male		Female	
	Number	Percent distribution <sup>1</sup>	Number	Percent distribution <sup>1</sup>
All occupations . . . . .	140,715	100.0	129,082	100.0
Executive, administrative, and managerial occupations . . . . .	12,279	8.7	3,687	2.9
Professional specialty occupations . . . . .	8,194	5.8	9,153	7.1
Technicians and related support . . . . .	1,191	0.8	1,250	1.0
Sales occupations . . . . .	11,869	8.4	5,001	3.9
Administrative support occupations, including clerical . . . . .	5,223	3.7	9,046	7.0
Service occupations . . . . .	9,535	6.8	12,091	9.4
Farming, forestry, fishing occupations . . . . .	22,788	16.2	951	0.7
Precision production, craft, and repair occupations . . . . .	29,108	20.7	1,735	1.3
Machine operators, assemblers, and inspectors . . . . .	10,925	7.8	6,878	5.3
Transportation and material moving occupations . . . . .	9,437	6.7	169	0.1
Handlers, equipment cleaners, helpers and laborers . . . . .	11,474	8.2	1,668	1.3
Military . . . . .	2,500	1.8	73	0.1
Homemaker . . . . .	235	0.2	74,124	57.4
Occupation not reported . . . . .	5,957	4.2	3,256	2.5

<sup>1</sup>Due to rounding, percents may not add to total.

Caution should be exercised in accepting statistically significant PMR's as meaning that the true PMR is not equal to 100, because approximately 12,000 PMR's in tables 1-4 were statistically tested, about 600 would be expected to be statistically significant at least at the 0.05 level, just due to chance (24).

Caution should also be exercised in using and interpreting PMR's for females; these may reflect the large proportion (57.4 percent) of female decedents for whom a single category "Homemaker" was reported as their usual occupation. The effect of such large categories on using and interpreting PMR's has been noted in previous research (25-27).

**Results**

**Mortality by occupation**

In 1984 a total of 140,715 deaths occurred to males and 129,082 occurred to females in the reporting States. Numbers and percents of deaths by major occupation and sex are shown in table A. The occupational group "Precision production, craft, and repair occupations" comprised the largest group of deaths in the reporting area for males and accounted for about one of every five deaths (20.7 percent). This was followed closely by Farming, forestry, and fishing occupations, with 16.2 percent of the occupational deaths reported; the percent in each of the

other occupational categories was less than 10 percent.

The Homemakers occupational group was by far the largest group for females and accounted for almost 6 of every 10 female deaths. The next largest group was Service occupations and accounted for almost 1 of every 10 female deaths in the area (9.4 percent).

Tables 1 and 2 present numbers of deaths by occupation for all causes of death combined and PMR's by occupation for the list of 52 selected causes of death by sex. The following discussion focuses not on all statistically significant PMR's over 100 but only on those of 150 or more. These are occupations or industries in which the observed number of deaths for a specified cause of death exceed the expected number by at least 50 percent, a level chosen arbitrarily to represent a meaningful elevated relative risk.

In 1984 a total of 35 occupations for males and 29 occupations for females had PMR's whose values were 150 or more and were statistically significant (called significantly elevated) at either the 5-percent or 1-percent level. For males 20 of the 35 occupations had significantly elevated PMR's for 1 of the selected causes of death; 8 of the occupations had significantly elevated associations for 2 causes of death; and 7 occupations had significantly elevated associations for 3 causes of death or more. For females 17 of the 29 occupations had significantly elevated

PMR's for 1 of the selected causes of death; 7 for 2 causes of death; and 5 had significantly elevated associations for 3 causes of death or more. These statistics are based on PMR's of 150 or more for the most detailed occupation-cause-of-death combinations that were statistically significant.

Proportionate mortality ratios can be used to identify specific causes of death associated with groups of occupations or industries. An example of an association reported between an occupation and causes of death for males is as follows: A total of 1,819 males employed in Extractive occupations (OC Nos. 613-617) resided and died in the 12 reporting States in 1984. Of these, statistically significantly elevated PMR's (150 or more) were associated with the following causes of death:

Cause of death	Number of observed deaths	PMR	Level of statistical significance
Chronic obstructive pulmonary diseases and allied conditions . . . . . 490-496	143	155	0.01
Pneumoconioses and pneumopathy due to inhalation of other dust . . . . . 500-505	62	3,759	0.01
Accidents mainly of industrial type . . . . . E846,E881-882,E916-E919, E921,E923-E926	37	456	0.01

Figure 1 shows the 10 highest PMR's (based on 10 or more deaths) that were statistically significant for

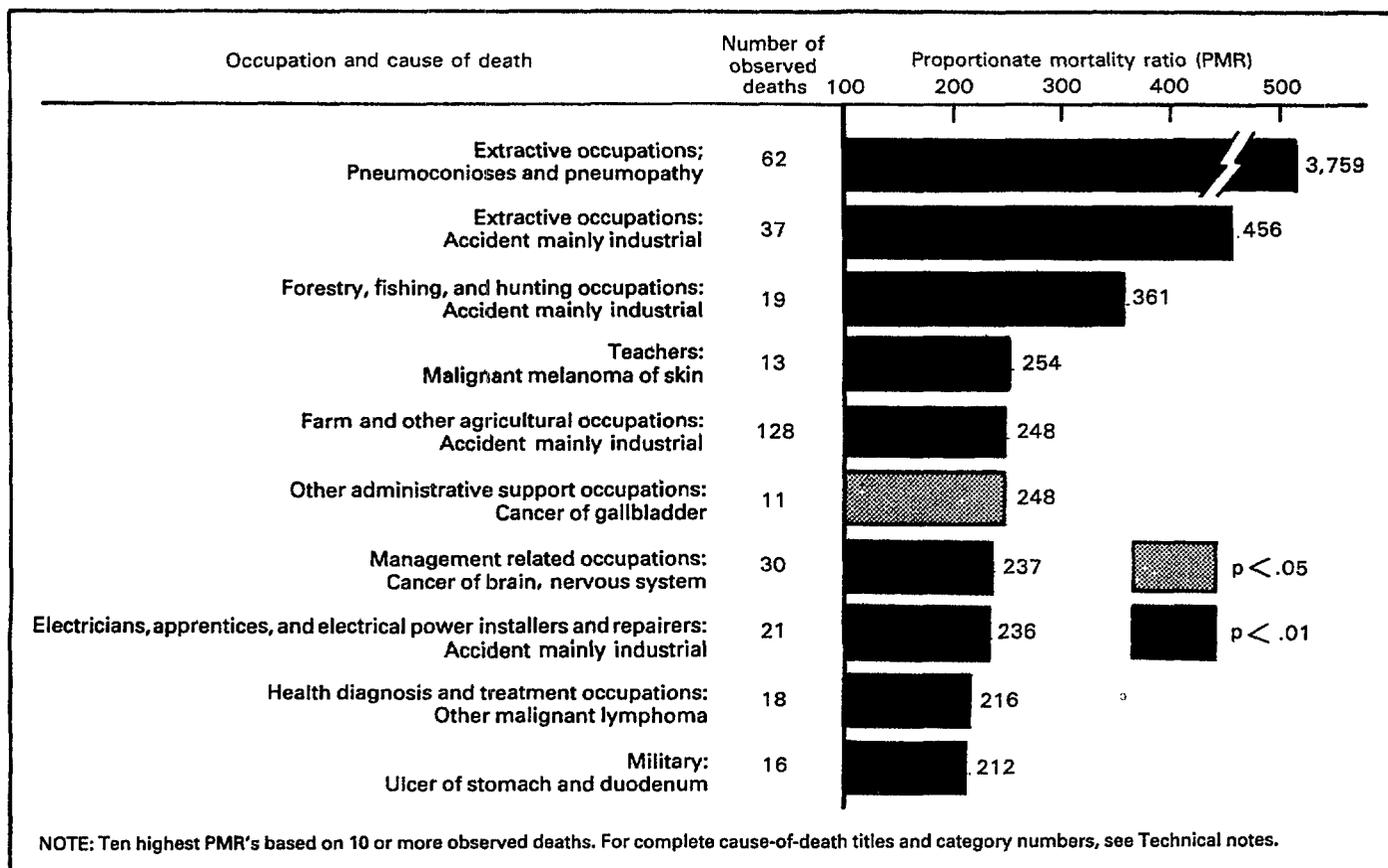


Figure 1. Ten highest statistically significant proportionate mortality ratios (PMR's) for occupations and causes of death and observed number of deaths for males 20 years of age and over: Total of 12 reporting States, 1984

combinations of occupations and causes of death for males. Figure 2 shows comparable information for females.

For males the highest PMR is for mortality from Pneumoconioses and pneumopathy (for inclusions in this cause-of-death category, see Technical notes and ICD-9) in the Extractive occupations. For these occupations the ratio of the observed to expected deaths from this cause was almost 40 (PMR of 3,759), that is, about 40 times as many men died in this occupational group than would have been expected had men in these occupations experienced the same proportion of deaths from these lung diseases as men in all occupations combined. In 1984 a total of 62 deaths occurred in the 12-State reporting area to men residing in that area from this occupation and cause-of-death combination.

The next highest PMR for males was also for the same group—Extractive occupations; in this case, the cause of death is Accidents mainly

of industrial type with a PMR of 456, indicating that almost five times as many deaths occurred in this occupational group from such accidents as expected, based on the proportion of deaths for these accidents for males in all occupations combined. In 1984 a total of 37 men died from this occupation and cause-of-death combination.

The other combinations of occupations and causes of death ranked among the highest 10 PMR's (with the PMR) for males are Forestry, fishing and hunting occupations, with deaths from Accidents mainly of industrial type (PMR equals 361); Teachers, Malignant melanoma of skin (PMR, 254); Farm and other agricultural occupations, Accidents mainly of industrial type (PMR, 248); Other administrative support occupations, Malignant neoplasms of gallbladder and extra hepatic bile ducts (PMR, 248); Management related occupations, Malignant neoplasms of brain and other unspecified parts of nervous system (PMR, 237);

Electricians, apprentices, and electrical power installers and repairers, Accidents mainly of industrial type (PMR, 236); Health diagnosis and treatment occupations, Malignant lymphoma other than Hodgkin's disease (PMR, 216); Military, Ulcer of stomach and duodenum (PMR, 212). All of these PMR's are statistically significant at the 1-percent level, except for males employed in Other administrative support occupations dying of Malignant neoplasms of gallbladder and extra hepatic bile ducts, for whom the PMR is significant at the 5-percent level.

Figure 2 shows the combinations of causes of death and occupational groups for females with the 10 highest ranking PMR's. Extractive occupations were the two highest PMR's for males; and Machine operators, assorted materials, were the two highest PMR's for females. Women in these occupations had high-ranking, statistically significant PMR's for two causes of death—Malignant neoplasm of body of uterus

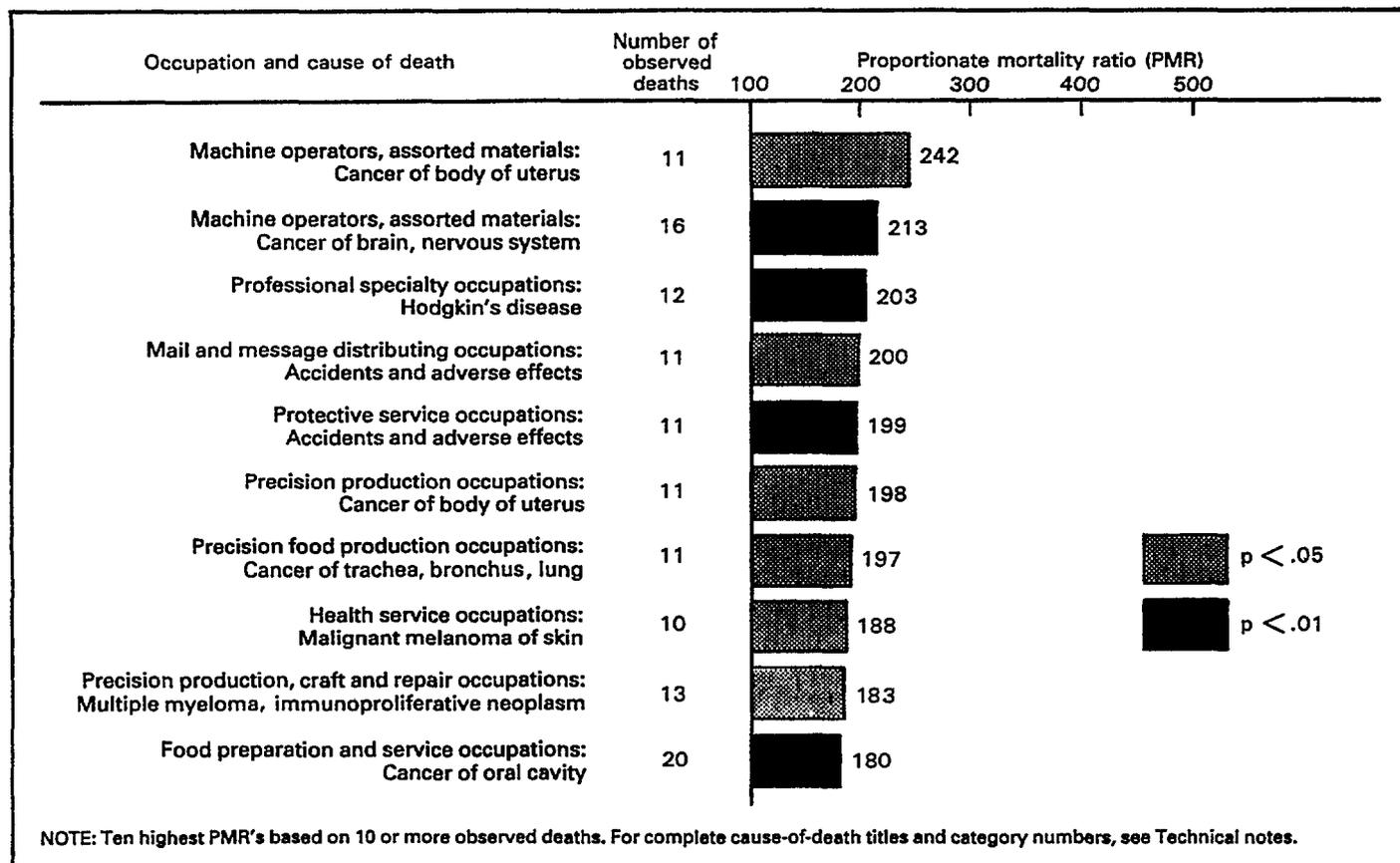


Figure 2. Ten highest statistically significant proportionate mortality ratios (PMR's) for occupations and causes of death and observed number of deaths for females 20 years of age and over: Total of 12 reporting States, 1984

(PMR, 242) and Malignant neoplasms of brain and other and unspecified parts of nervous system (PMR, 213). In 1984 the combination Machine operators, assorted materials and Malignant neoplasms of body of uterus accounted for 11 deaths, and the same occupation and Malignant neoplasms of brain and other and unspecified parts of nervous system accounted for 16 deaths for female residents of the reporting area occurring in the reporting area. The other combinations of occupations and causes of death with the 10 highest ranking PMR's (with the PMR) are Professional specialty occupations, Hodgkin's disease (PMR, 203); Mail and message distributing occupations, Accidents and adverse effects (PMR, 200); Protective service occupations, Accidents and adverse effects (PMR, 199); Precision production occupations, Malignant neoplasm of body of uterus (PMR, 198); Precision food production occupations, Malignant neoplasms of trachea,

bronchus, and lung (PMR, 197); Health service occupations, Malignant melanoma of skin (PMR, 188); Precision production, craft, and repair occupations, Multiple myeloma and immunoproliferative neoplasms (PMR, 183); and Food preparation and service occupations, Malignant neoplasms of lip, oral cavity, and pharynx. The PMR's were significant at the 1-percent level for 4 of these 10 combinations of occupations and causes of death and at the 5-percent level for 6 others.

### Mortality by industry

For males the industry group accounting for the largest number of deaths was Manufacturing; more than one out of five male decedents (22.8 percent) were employed in this industry (table B). This was followed by Agriculture, forestry, and fisheries, 15.6 percent; and Construction, 11.5 percent. Other industry categories each had 10 percent or less of the male

deaths. For females the industry group accounting for the largest number of deaths was assigned to Industry not reported; almost all of these were homemakers, whose industry was classified as not reported (table B). The next largest industry group for females was Professional and related services, which accounted for 11.9 percent of female deaths in the reporting areas in 1984. No other single industry group accounted for as much as 10 percent of female deaths.

Numbers of deaths by industry for all causes of death combined and PMR's by industry for the list of 52 selected causes of death by sex are shown in tables 3 and 4. In 1984 there were 31 groups of industries in which males had at least 1 cause of death with a statistically significant PMR of over 150; for females there were 32 such industries. Among these industries for males were 15 in which only 1 cause of death was so associated; 10 industries with 2 causes; and 6 indus-

**Table B. Number of deaths and percent distribution by major industries, according to sex: Total of 12 reporting States, 1984**

[Data include only deaths to residents of the 12-State reporting area occurring in the area. For a listing of reporting States, see Technical notes]

Industry	Male		Female	
	Number	Percent distribution <sup>1</sup>	Number	Percent distribution <sup>1</sup>
All industries . . . . .	140,715	100.0	129,082	100.0
Agriculture, forestry, and fisheries . . . . .	21,935	15.6	1,110	0.9
Mining . . . . .	2,554	1.8	47	0.0
Construction . . . . .	16,202	11.5	317	0.2
Manufacturing . . . . .	32,014	22.8	10,547	8.2
Transportation, communications, and other public utilities . . . . .	14,696	10.4	2,085	1.6
Wholesale trade . . . . .	4,557	3.2	713	0.6
Retail trade . . . . .	12,855	9.1	8,781	6.8
Finance, insurance, and real estate . . . . .	3,704	2.6	2,053	1.6
Business and repair services . . . . .	4,801	3.4	847	0.7
Personal services . . . . .	3,028	2.2	7,115	5.5
Entertainment and recreation services . . . . .	1,097	0.8	413	0.3
Professional and related services . . . . .	8,594	6.1	15,387	11.9
Public administration . . . . .	6,060	4.3	2,197	1.7
Military . . . . .	2,696	1.9	93	0.1
Industry not reported . . . . .	5,922	4.2	77,377	59.9

<sup>1</sup>Due to rounding, percents may not add to total.

tries in which 3 or more causes had significantly elevated PMR's. Among these industries for females were 17 with 1 cause of death, 11 with 2 causes, and 4 with 3 or more causes of death with significantly elevated PMR's. These statistics are based on PMR's of 150 or more for the most detailed industry-cause-of-death combinations that were statistically significant.

These data can be used to identify specific causes of death associated with groups of industries. Following is an example of associations reported between industry and cause of death for females: A total of 2,605 females who resided and died in the 12-State reporting area in 1984 were reported as having their usual work in the Eating and drinking places (retail) industry (IC No. 641). For these women statistically significant PMR's of 150 or more occurred for the following causes of death:

Cause of death	Number of observed deaths	Level of statistical significance
Malignant neoplasms of lip, oral cavity, and pharynx . . . . . 140-149	18	198 0.01
Malignant neoplasm of esophagus . . . . . 150	11	185 0.05
Malignant neoplasm of cervix uteri . . . . . 180	25	151 0.05
Homicide and legal intervention . . . . . E960-E978	41	152 0.01

Figure 3 shows the 10 highest PMR's (based on 10 or more deaths) that are statistically significant for com-

binations of industry and cause of death for males. Figure 4 shows comparable information for females. For males the combinations of cause of death and industry with the highest PMR's are similar to those for occupation; for the occupations the two highest PMR's are Extractive occupations; for the industries the two highest PMR's are Mining industries. The causes of death associated with the Mining industries are the same as that for the Extractive occupations, that is, Pneumoconioses and pneumopathy due to inhalation of other dust (with a PMR of 2,857) and Accidents mainly of industrial type (with a PMR of 419). Other combinations of industries and causes of death with high statistically significant PMR's for males are Stone, clay, glass, and concrete products (manufacturing), Malignant neoplasm of rectum, rectosigmoid junction, and anus (PMR, 270); Lumber and other wood products, and furniture (manufacturing), Accidents mainly of industrial type (PMR, 262); Educational services, Malignant melanoma of skin (PMR, 247); Agriculture, forestry, and fisheries, Accidents mainly of industrial type (PMR, 246); Durable goods (manufacturing), Malignant neoplasm of pleura (PMR, 234); Electrical machinery, equipment, and supplies, Hypertension with or without renal disease (PMR, 232); Private households, Atherosclerosis (PMR, 230); and Legal, engineering, and other services, Hypertensive heart disease (PMR, 222).

A number of the industry and cause-of-death combinations parallel those of occupations and cause-of-death combinations. PMR's for 7 of the 10 combinations are significant at the 1-percent level; the remaining 3 combinations are significant at the 5-percent level.

Figure 4 shows the 10 highest PMR's for combinations of industries and causes of death for females. The highest PMR (PMR, 286) is for women whose usual work was in the Transportation industries, and the cause of death is Malignant neoplasms of brain and other and unspecified parts of nervous system. A total of 15 deaths occurred in the 12-State reporting area to women residing in that reporting area in 1984 for this combination of cause of death and industry. For the combinations of industry and cause of death, the other highest ranking PMR's are Construction, Chronic obstructive pulmonary diseases (PMR, 227); Fabricated metal industries (manufacturing), Malignant neoplasms of trachea, bronchus, and lung (PMR, 204); Eating and drinking places (retail), Malignant neoplasms of lip, oral cavity, and pharynx (PMR, 198); Durable goods (manufacturing), Malignant neoplasm of body of uterus (PMR, 197); Food, bakery, and dairy stores (retail), Homicide and legal intervention (PMR, 196); Construction, All other malignant neoplasms, including neoplasms of lymphatic and

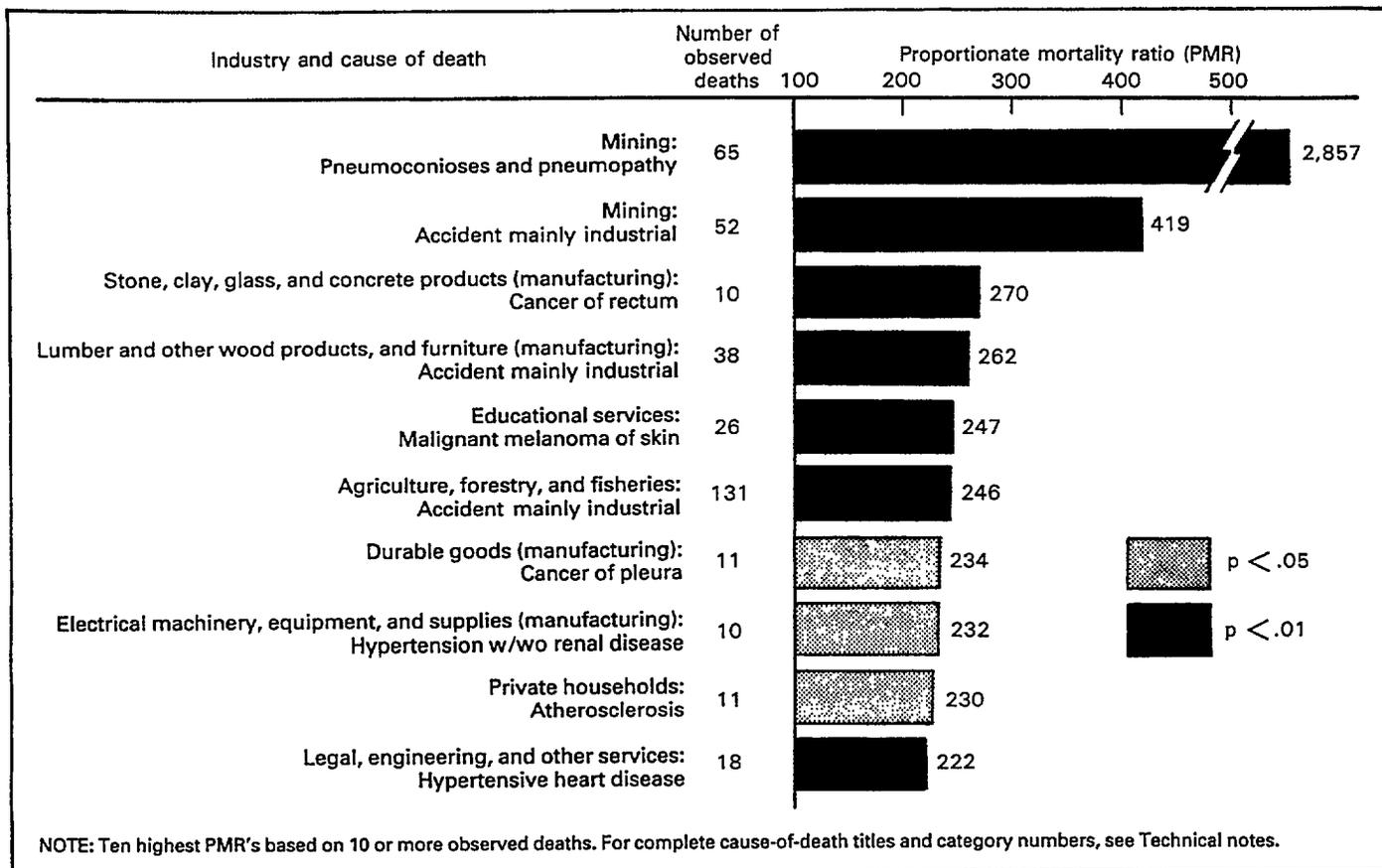


Figure 3. Ten highest statistically significant proportionate mortality ratios (PMR's) for industries and causes of death and observed number of deaths for males 20 years of age and over: Total of 12 reporting States, 1984

hematopoietic tissues (PMR, 194); Professional and related services, Hodgkin's disease (PMR, 187); Railroads, Malignant neoplasm of colon (186); Transportation, communications, and other public utilities, Malignant neoplasms of rectum, rectosigmoid junction, and anus (PMR, 185); Eating and drinking places (retail), Malignant neoplasm of esophagus (PMR, 185); and Legal, engineering, and other services, Malignant lymphoma other than Hodgkin's disease (PMR, 185). PMR's for 8 of the 12 combinations for industry and cause of death for women are significant at the 1-percent level, and the other 4 combinations are significant at the 5-percent level.

### Discussion

Using information for a 12-State reporting area in 1984, this report illustrates the use of occupation and industry information on the death certificate for identifying possible associa-

tions between occupational exposures and subsequent health outcomes. As measured by the proportionate mortality ratio (PMR), the report identifies a number of occupations and industries characterized by elevated mortality for specified causes of death.

Occupation and industry information from the death certificate can serve as a readily available tool for monitoring occupational mortality on an ongoing basis. It has the advantage of being useful for many occupations and industries. These data draw on the strengths of the vital statistics system, which include uniformity of information, large number of events, and geographic identifiers. The data, as demonstrated in this report, can be used for descriptive analyses; the results can be used to generate hypotheses about mortality risks associated with different occupations and industries.

The interpretation of associations between causes of death and occupa-

tion and industry of decedents, based on information from death certificates, must be tempered by a number of considerations noted in other reports. These considerations include:

- The selection by health status of persons entering certain occupations and industries; thus, some occupations (firemen) and industries (the military) may require a certain level of fitness to enter. Conversely, unhealthy persons may be relegated to certain other occupations (28).
- The selection of persons entering occupations and industries by other characteristics such as their ethnicity; for example, proprietorship of convenience stores by immigrants or participation in high-risk construction activities by American Indians may result in associations that are confounded by the characteristics of the ethnic group.

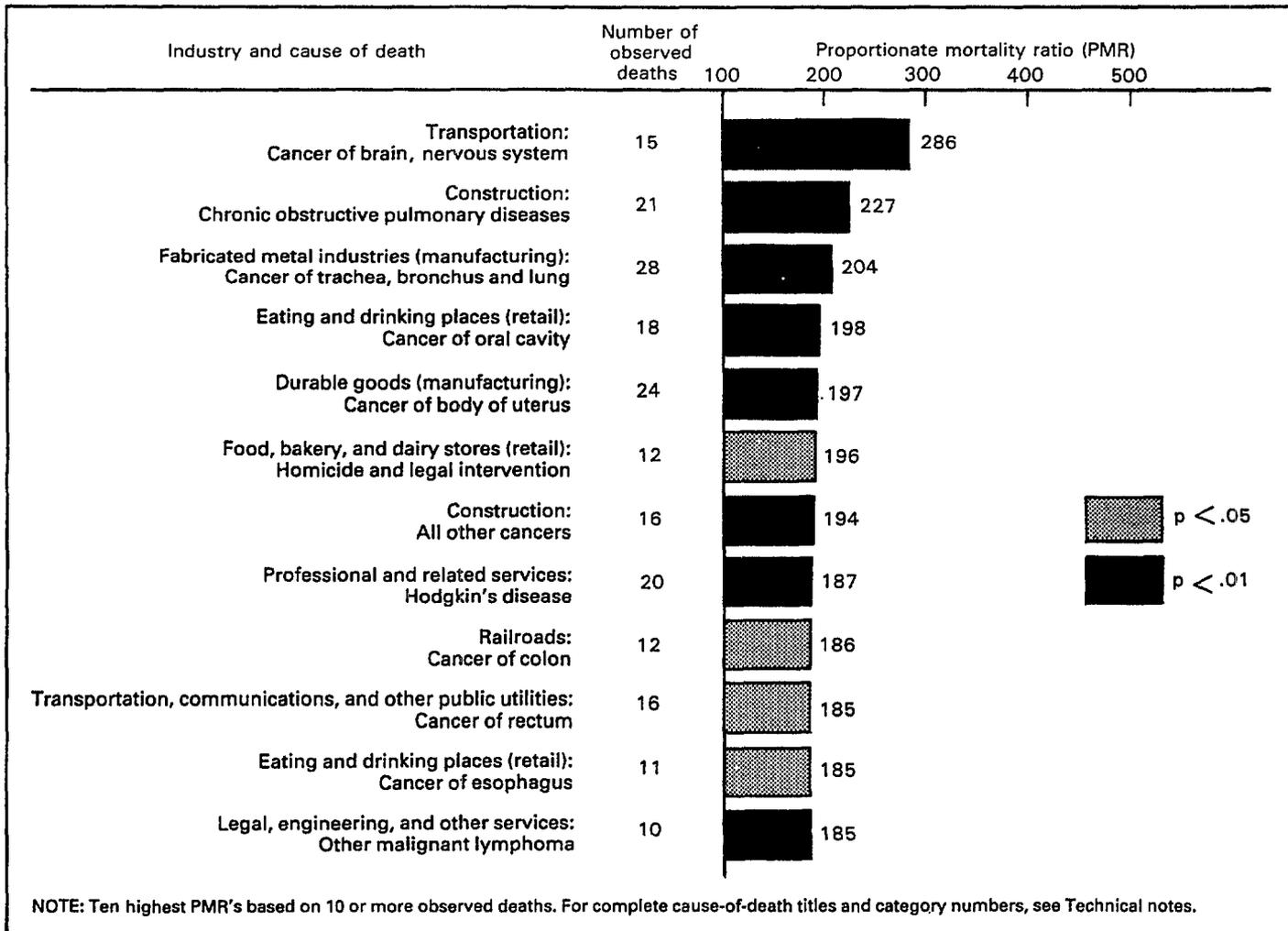


Figure 4. Ten highest statistically significant proportionate mortality ratios (PMR's) for Industries and causes of death and observed number of deaths for females 20 years of age and over: Total of 12 reporting States, 1984

- Associations between occupations and causes of death may reflect the socioeconomic status (for example, income, educational attainment, etc.) of the decedents which, through lifestyle as reflected in confounding factors such as smoking or alcohol consumption, may be more closely associated with mortality than with the occupations themselves.
- This study does not include actual exposures or measures of exposure such as duration and intensity. Thus, to establish more definitive associations between occupation, industry, and cause of death requires special in-depth studies, both prospective and retrospective, that can followup the leads suggested by reports such as this.

Other limitations and considerations of this approach include the accuracy and completeness of reporting and the nature of the PMR as an index of the relative occupational risk.

**Accuracy of reporting**

Results in this report may also depend on the accuracy of reporting occupation and industry on the death certificate. This information is provided by the funeral director, based on the statements of an informant who may not have had specific or accurate knowledge of the decedent's work history. A number of studies have been made on the accuracy of the information reported on the death certificate by comparing this information with other sources. They indicate a level of

agreement in the range of 50 to 80 percent (15,29). Reporting the last rather than the usual occupation and industry, the "upgrading" of the occupation, and vague and imprecise entries are among the problems noted in the studies. It has also been noted that for many people who have different jobs throughout their working life, it may be difficult to designate any single occupation as "usual." This can be particularly true of women who may have been housewives and who may have held a variety of other jobs throughout their lives.

NCHS is promoting better reporting of occupation and industry on the death certificate through a handbook (18) that has been distributed widely to State vital registration offices and others.

## Reporting completeness

Reporting completeness by occupation and industry is shown in tables 5 and 6 for the 12 individual reporting States in 1984 and for the entire reporting area. For occupation 98 percent of the resident deaths occurring in the reporting area to persons 20 years of age and over had useable occupation codes (that is, occupations other than retired and unknown). About 68 percent were coded to specified occupation codes other than homemaker, military, volunteer, student, unemployed or never worked. The category "Homemaker" accounted for 28 percent of all deaths occurring in the area, and the remaining useable occupation codes accounted for about 2 percent of the deaths. For about 2 percent of the deaths the occupation code was not useful (that is, retired or unknown).

Reporting completeness as reflected in these codes varied by State. Thus, retired or occupation unknown ranged from 0.3 percent to 8.1 percent (table 5). Reporting completeness for usual industry was similar to that for usual occupation (table 6).

## PMR as a measure of relative risk

PMR's are known to have limitations as indicators of relative mortality risk. They are used in this report because needed population data for calculating population-based measures such as the standardized mortality ratio (SMR) are not readily available. However, PMR's have been widely used as an approximation of SMR's (30).

The PMR as an index of occupational risk is subject to a number of limitations, some of which were alluded to earlier. Because it does not make use of the population "at risk," it cannot be interpreted as a death rate (31,32). Rather, it indicates whether a higher or lower proportion of deaths than expected was reported for a particular cause of death.

If the *risk* of death for all causes for an occupation (or industry) is low, the PMR's by cause of death *overstate* the mortality risks. Conversely, if the

overall risk is high, the PMR's will understate the risks (32). In addition, the value of the PMR may be affected by abnormal mortality in one or more major causes (33). The proportion of deaths from a cause of death may be low because mortality from another major cause of death is disproportionately high and vice versa. Moreover, summary PMR's may mask differences found in specific age groups (34). A PMR can also be affected by the distribution of unknown occupation or unknown industry if this is not distributed relatively proportionately. However, the percent of unknown occupation and industry in this report is very low and is not likely to affect the PMR's.

In computing PMR's it is feasible and sometimes more useful to delete selected occupations or causes of death from analysis. For example, for the analysis of female occupation mortality, it may be more desirable to use as the basis of comparison the female population excluding women who reported "Homemaker" as their usual occupation. Because this subgroup accounts for such a substantial share (57.4 percent) of all female decedents, some may find it more useful to calculate PMR's on the basis of the mortality experience of only those women who reported their usual employment as outside the home. For this study all occupations and causes of death are included.

PMR's can be more useful if the size of the affected population is taken into account. Thus, a smaller PMR (near 150) in relation to a small occupational group has a small quantitative impact in terms of the observed number dying in excess of the expected number. The same PMR with a large occupational group represents a much larger numerical impact. Thus, some combination of the PMR, along with numbers of deaths on which the measure is based, may be more analytically useful than the PMR alone. Recognition of this is reflected in the use of the 10 highest PMR's that were statistically significant and were based on at least 10 observed deaths in figures 1-4.

## References

1. Rosenberg HM, Burnham D, Spirtas R, Valdisera V. Occupation and industry information from the death certificate: assessment of the completeness of reporting. In: DeBene L, Scheuren F, eds. Statistical uses of administrative records with emphasis on mortality and disability research. Washington: National Center for Health Statistics. 83-7. 1979.
2. Kaplan DL, Parkhurst E, Whelpton PK. Comparability of reports on occupation from vital records and the 1950 census. Vital statistics—special reports; vol 53 no 1. Washington: National Center for Health Statistics. 1961.
3. Guralnick L. Mortality by occupation and industry among men 20 to 64 years of age: United States, 1950. Vital statistics—special reports; vol 53 no 2. Washington: National Center for Health Statistics. 1962.
4. Guralnick L. Mortality by occupation and cause of death among men 20 to 64 years of age: United States, 1950. Vital statistics—special reports; vol 53 no 3. Washington: National Center for Health Statistics. 1963.
5. Guralnick L. Mortality by industry and cause of death among men 20 to 64 years of age: United States, 1950. Vital statistics—special reports; vol 53 no 4. Washington: National Center for Health Statistics. 1963.
6. Guralnick L. Mortality by occupation level and cause of death among men 20 to 64 years of age: United States, 1950. Vital statistics—special reports; vol 53 no 5. Washington: National Center for Health Statistics. 1963.
7. Milham S, Jr. Occupational mortality in Washington State, 1950-79. Olympia, Washington: National Institute for Occupational Safety and Health. 1983.
8. Peterson GR, Milham S. Occupational mortality in the State of California, 1959-1961. Cincinnati, Ohio: National Institute for Occupational Safety and Health, 1980.
9. Gute DM. The association of occupation and industry with mortality in Rhode Island, 1968-1972: Technical report no 23. Providence, Rhode Island. 1981.
10. MacCubbin PA, Herzfeld PM, Therriault GD. Mortality in New York State, 1980-82: A report by occupation and industry. Monograph no 21. Albany, New York: New York State Department of Health. 1986.

11. Pennsylvania Department of Health. Report on the Mortality experience of Pennsylvania workers, 1983. Harrisburg, Pennsylvania: State Health Data Center. 1985.
12. Mace ML. Proportional mortality ratios for the leading causes of death within industry groups (South Carolina Resident Data, 1983). Columbia, South Carolina: South Carolina Department of Health and Environmental Control. Undated.
13. Ford WL. An analysis of industrial and occupational mortality among white males in Kentucky, 1983-1985. Frankfort, Kentucky: Kentucky Department for Health Services. 1987.
14. Brockert JE, Levy MI, Kan SH. Utah's Occupational Health Surveillance System, 1980-1982. Technical report no 0029. Salt Lake City, Utah: Utah Department of Health. 1985.
15. Riedmiller K, Doebbert G, Lashuay N, et al. California occupational mortality, 1979-81. Sacramento, California: California Department of Health Services. 1987.
16. Kitagawa EM, Hauser PM. Differential mortality in the United States: A study in socioeconomic epidemiology. American Public Health Association, vital and health statistics monographs. Cambridge, Massachusetts: Harvard University Press. 1973.
17. Office of Population Censuses and Surveys, Governmental Statistical Service. Occupational mortality: Decennial supplement, England and Wales, 1970-72. London, England: Her Majesty's Stationery Office, 1978.
18. National Center for Health Statistics. Guidelines for reporting occupation and industry on death certificates. Hyattsville, Maryland: Public Health Service. 1983.
19. Bureau of the Census. Alphabetical index of industries and occupations. Washington: U.S. Department of Commerce. 1982.
20. Bureau of the Census. Classified index of industries and occupations. Washington: U.S. Department of Commerce. 1982.
21. National Center for Health Statistics. Industry and occupation coding for death certificates, 1984. NCHS instruction manual; part 19. Hyattsville, Maryland: Public Health Service. 1984.
22. World Health Organization. Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, based on the recommendations of the Ninth Revision Conference, 1975. Geneva: World Health Organization. 1977.
23. Chiang CL. Standard error of the age-adjusted death rate. Vital statistics—special reports: vol 47 no 9. Washington: Public Health Service. 1961.
24. Miller RG. Simultaneous statistical inference. New York: McGraw-Hill Book Company. 1966.
25. Milham S, Jr. Methods in occupational mortality study. *J Occup Med* 17(9):581-85. 1975.
26. Monson R. Analysis of relative survival and proportional mortality. *Computers and biomedical research*; vol 7, 325-32. 1974.
27. Symons M, Taulbee J. Statistical evaluation of the risk of cancer mortality among industrial populations. In: Cornell R, ed. *Statistical methods for cancer studies*. New York: Marcel Dekker, Inc.; ch. 2, 25-90. 1984.
28. McMichael AJ. Standardized mortality ratios and the "healthy worker effect": Scratching beneath the surface. *J Occup Med* 18(3): 165-68. 1976.
29. Schade WJ, Swanson GM. Comparison of death certificate occupation and industry data with lifetime occupational histories obtained by interview: Variations in the accuracy of death certificate entries. *Am J Ind Med* 14(2):121-36. 1988.
30. Waxweiler RJ, Haring MK, Leffingwell SS, Halperin WH. Quantification of differences between proportionate mortality ratios and standardized mortality ratios. In: Peto R, Schneiderman M, eds. *Banbury report 9; quantification of occupation cancer*. New York: Cold Spring Harbor Laboratory. 379-89. 1981.
31. Kupper LL, McMichael AJ, Symons MJ, Most BM. On the utility of proportionate mortality analysis. *J Chron Dis* 31:15-22. 1978.
32. Decoufle P, Thomas TL, Pickle LW. Comparison of the proportionate mortality ratio and standardized mortality ratio risk measures. *Am J Epidemiol* 111(3):263-69. 1980.
33. McDowell M. Adjusting proportional mortality ratios for the influence of extraneous causes of death. *Stat Med* 2:467-75. 1983.
34. Zeighami EA, Morris MD. The measurement and interpretation of proportionate mortality. *Am J Epidemiol* 117(1):90-7. 1983.
35. National Center for Health Statistics. Vital statistics, instructions for classifying the underlying cause of death. NCHS instruction manual; part 2a. Rockville, Maryland: Public Health Service. Published annually.
36. Mantel N, Haenszel W. Statistical aspects of the analysis of data from retrospective studies of disease. *J Natl Cancer Inst* 22:719-49. 1959.
37. Bailar JC III, Ederer F. Significance factors for the ratio of a poisson variable to its expectation. *Biometrics: The Biometric Society* 20(3):639-43. 1964.
38. Gittelsohn A, Royston PN. Annotated bibliography of cause-of-death validation studies, 1958-80. National Center for Health Statistics. *Vital Health Stat* 2(89). 1982.
39. National Center for Health Statistics. Catalog of public-use data tapes from the National Center for Health Statistics. Hyattsville, Maryland: Public Health Service. 1988.

**List of detailed tables**

<p>1. Deaths from 46 selected occupations and 52 selected causes of death, and proportionate mortality ratios (PMR's) for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984. . . . . 12</p> <p>2. Deaths from 46 selected occupations and 52 selected causes of death, and proportionate mortality ratios</p>	<p>(PMR's) for 46 selected occupations by 52 selected causes of death for females, 20 years of age and over: Total of 12 reporting States, 1984 . . . 24</p> <p>3. Deaths from 42 selected industries and 52 selected causes of death, and proportionate mortality ratios (PMR's) for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984. . . . . 36</p> <p>4. Deaths from 42 selected industries and 52 selected causes of death, and</p>	<p>proportionate mortality ratios (PMR's) for 42 selected industries by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984 . . . . . 48</p> <p>5. Deaths and percent distribution by selected occupations: Total of 12 reporting States and each State, 1984. . . . . 60</p> <p>6. Deaths and percent distribution by selected industries: Total of 12 reporting States and each State, 1984. . . . . 61</p>
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**Symbols**

- Data not available
  - . . . Category not applicable
  - Quantity zero
  - 0.0 Quantity more than zero but less than 0.05
  - A Proportionate mortality ratio (PMR) is statistically significantly different from 100 at the 0.05 level
  - B Proportionate mortality ratio (PMR) is statistically significantly different from 100 at the 0.01 level
  - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
-

**Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Number of deaths	Tuberculosis (010-018, 137)	Septicemia (038)	All cancers (140-208)	Cancer of oral cavity (140-149)	Cancer of esophagus (150)	Cancer of stomach (151)	Cancer of colon (153)	Cancer of rectum (154)	Cancer of liver (155)
Number of deaths										
All occupations . . . . .	140,715	123	864	32,089	770	843	1,044	3,028	563	428
Proportionate mortality ratios										
Executive, administrative, and managerial occupations . . . . . 003-037	12,279	89	85	B 108	96	113	A 122	B 124	101	102
Executive and administrative occupations . . . . . 003-019	9,875	97	85	B 109	91	107	116	B 125	107	86
Management related occupations . . . . . 023-037	2,404	57	83	103	119	140	146	119	78	170
Professional specialty occupations . . . . . 043-199	8,194	94	111	B 105	95	102	120	B 124	97	B 152
Architects, engineers, and scientists . . . . . 043-083	2,674	52	103	B 111	104	136	109	104	95	A 175
Health diagnosis and treatment occupations . . . . . 084-106	1,232	-	155	110	49	32	153	121	59	57
Teachers . . . . . 113-163	1,475	81	105	103	96	127	137	A 144	66	132
Other professional specialty occupations . . . . . 164-199	2,813	171	103	99	104	84	108	B 134	134	A 180
Technicians and related support . . . . . 203-235	1,191	-	151	107	88	59	48	A 141	166	139
Sales occupations . . . . . 243-285	11,869	94	106	102	103	101	104	107	86	111
Administrative support occupations, including clerical . . . . . 303-389	5,223	46	77	104	121	84	88	B 130	83	88
Secretaries, stenographers, and typists . . . . . 313-315	97	-	-	A 142	( <sup>1</sup> )	( <sup>1</sup> )	-	145	-	-
Records processing occupations . . . . . 325-344	530	-	127	92	B 346	74	55	103	47	68
Mail and message distributing occupations . . . . . 354-357	1,267	-	75	102	69	89	157	B 151	75	76
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	3,329	74	72	105	107	80	69	A 125	94	98
Service occupations . . . . . 403-469	9,535	67	108	99	107	107	104	90	117	A 138
Private household occupations . . . . . 403-407	112	-	86	102	438	100	-	47	( <sup>1</sup> )	( <sup>1</sup> )
Protective service occupations . . . . . 413-427	2,512	-	119	98	125	80	133	87	84	168
Food preparation and service occupations . . . . . 433-444	1,467	117	115	96	90	A 167	51	89	137	148
Health service occupations . . . . . 445-447	255	-	113	109	-	-	141	59	318	220
Cleaning and building service occupations . . . . . 448-455	4,177	98	85	100	104	111	105	95	114	127
Personal service occupations . . . . . 456-469	1,012	-	A 176	97	94	80	116	95	133	64
Farming, forestry, fishing occupations . . . . . 473-499	22,788	108	93	B 89	B 63	A 79	A 82	B 84	A 81	A 75
Farm and other agricultural occupations . . . . . 473-489	21,778	109	96	B 88	B 64	B 75	B 80	B 85	80	A 76
Forestry, fishing, and hunting occupations . . . . . 494-499	1,010	82	29	103	51	138	112	75	83	59
Precision production, craft and repair occupations . . . . . 503-699	29,108	A 141	93	B 105	112	107	96	97	111	A 77
Mechanics and repairers . . . . . 503-549	6,625	153	100	104	118	101	92	98	76	103
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	3,462	211	103	106	116	127	101	95	77	93
Other mechanics and repairers . . . . . 503, 518-549	3,163	84	97	101	121	71	81	102	75	114
Construction trades . . . . . 553-599	11,548	A 163	101	B 105	120	120	89	93	A 130	69
Carpenters and apprentices . . . . . 567-569	3,996	94	105	102	103	A 148	74	82	131	61
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	1,532	91	49	107	87	48	83	101	126	89
Painters, construction and maintenance . . . . . 579	1,434	B 467	129	107	B 200	151	105	86	159	113
Other construction trades . . . . . 553-566, 573, 583-599	4,586	142	105	B 107	120	112	98	103	121	55
Extractive occupations . . . . . 613-617	1,819	233	116	94	67	108	87	B 50	81	96
Precision production occupations . . . . . 633-699	9,116	85	74	B 107	105	95	110	110	120	66
Supervisors, production occupations . . . . . 633	2,472	-	58	B 112	109	84	120	A 126	150	A 26
Precision metal and woodworking occupations . . . . . 634-659	3,770	107	80	B 108	91	107	104	106	113	72
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	487	( <sup>1</sup> )	190	96	85	39	114	105	105	71
Precision food production occupations . . . . . 686-688	1,026	( <sup>1</sup> )	62	94	145	144	91	77	75	95
Other precision production occupations . . . . . 675-684, 689-699	1,361	95	51	106	110	65	120	114	122	99

Machine operators, assemblers, and inspectors . . . . .	703-799	10,925	73	107	101	114	86	100	99	106	99
Machine operators and tenders, except precision . . . . .	703-779	8,146	81	108	98	115	83	99	100	116	90
Metal, plastic, and woodworking machine operators . . . . .	703-733	1,301	80	98	99	128	78	116	74	114	23
Printing machine operators . . . . .	734-737	726	-	122	91	104	152	97	92	133	95
Textile, apparel, and furnishing machine operators . . . . .	738-749	2,211	149	129	B 89	115	51	71	102	102	131
Machine operators, assorted materials . . . . .	753-779	3,908	56	96	105	112	91	110	109	121	89
Fabricators, assemblers, and hand working occupations . . . . .	783-795	2,135	59	118	B 112	146	100	94	101	92	166
Production inspectors, testers, samplers, and weighers . . . . .	796-799	644	-	54	96	-	74	125	84	37	-
Transportation and material moving occupations . . . . .	803-859	9,437	46	96	100	109	96	91	A 87	A 133	77
Motor vehicle operators . . . . .	803-814	6,215	51	101	97	110	97	87	B 75	A 139	71
Other transportation occupations . . . . .	823-859	3,222	36	88	104	107	92	98	109	121	89
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	11,474	116	108	A 96	98	A 121	111	B 82	106	A 130
Construction laborers . . . . .	869	3,003	166	95	99	77	A 144	110	82	A 177	137
Laborers, except construction . . . . .	889	6,663	90	118	B 93	108	113	102	85	87	125
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	1,808	126	90	103	98	111	142	71	63	138
Military . . . . .	905	2,500	195	91	B 109	98	90	B 173	117	45	156
Homemaker . . . . .	914	235	-	65	96	252	305	60	145	-	(1)
Occupation not reported . . . . .	913, 915-999	5,957	114	A 141	B 85	97	93	80	100	69	86

**Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Cancer of gall-bladder (156)	Cancer of pancreas (157)	Cancer of larynx (161)	Cancer of trachea, bronchus, lung (162)	Cancer of pleura (163)	Cancer of bone (170)	Cancer of connective tissue (171)	Malignant melanoma of skin (172)	Cancer of female breast (174)	Cancer of cervix uteri (180)	
	Number of deaths										
All occupations . . . . .	183	1,443	377	11,314	35	62	176	424	...	...	
	Proportionate mortality ratios										
Executive, administrative, and managerial occupations . . . . . 003-037	94	A 121	108	95	58	81	B 180	B 152	...	...	
Executive and administrative occupations . . . . . 003-019	110	B 125	119	99	36	51	B 173	B 154	...	...	
Management related occupations . . . . . 023-037	30	102	62	B 81	(1)	209	210	143	...	...	
Professional specialty occupations . . . . . 043-199	100	B 132	B 41	B 78	139	231	118	B 177	...	...	
Architects, engineers, and scientists . . . . . 043-083	27	108	67	90	260	189	60	132	...	...	
Health diagnosis and treatment occupations . . . . . 084-106	178	B 176	64	86	-	(1)	214	191	...	...	
Teachers . . . . . 113-163	258	118	25	B 66	(1)	323	106	B 254	...	...	
Other professional specialty occupations . . . . . 164-199	54	A 143	A 14	B 69	-	234	141	A 174	...	...	
Technicians and related support . . . . . 203-235	65	84	153	104	-	(1)	143	102	...	...	
Sales occupations . . . . . 243-285	86	113	80	97	90	207	63	B 158	...	...	
Administrative support occupations, including clerical . . . . . 303-389	158	A 131	76	A 90	72	141	157	76	...	...	
Secretaries, stenographers, and typists . . . . . 313-315	-	(1)	-	135	-	-	-	(1)	...	...	
Records processing occupations . . . . . 325-344	-	169	-	A 64	-	A 1,009	-	140	...	...	
Mail and message distributing occupations . . . . . 354-357	-	103	27	85	(1)	-	143	86	...	...	
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	A 248	A 136	107	95	-	72	188	56	...	...	
Service occupations . . . . . 403-469	120	88	A 141	99	-	67	97	112	...	...	
Private household occupations . . . . . 403-407	-	96	(1)	101	-	-	-	(1)	...	...	
Protective service occupations . . . . . 413-427	149	74	139	98	-	-	154	107	...	...	
Food preparation and service occupations . . . . . 433-444	62	112	A 219	94	-	(1)	130	71	...	...	
Health service occupations . . . . . 445-447	(1)	193	268	74	-	-	-	270	...	...	
Cleaning and building service occupations . . . . . 448-455	99	82	116	105	-	104	78	114	...	...	
Personal service occupations . . . . . 456-469	158	93	81	89	-	-	-	111	...	...	
Farming, forestry, fishing occupations . . . . . 473-499	108	97	B 63	B 82	A 19	45	102	B 61	...	...	
Farm and other agricultural occupations . . . . . 473-489	112	96	B 61	B 80	A 20	A 36	103	B 60	...	...	
Forestry, fishing, and hunting occupations . . . . . 494-499	-	122	108	120	-	(1)	80	75	...	...	
Precision production, craft and repair occupations . . . . . 503-699	103	96	A 123	B 113	143	78	B 62	90	...	...	
Mechanics and repairers . . . . . 503-549	114	90	129	B 111	-	-	A 33	85	...	...	
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	110	80	A 163	B 117	-	-	20	80	...	...	
Other mechanics and repairers . . . . . 503, 518-549	117	100	91	105	-	-	48	90	...	...	
Construction trades . . . . . 553-599	134	101	A 139	B 117	A 276	130	66	85	...	...	
Carpenters and apprentices . . . . . 567-569	113	117	158	A 113	195	57	61	58	...	...	
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	A 291	76	99	110	(1)	406	47	141	...	...	
Painters, construction and maintenance . . . . . 579	55	69	156	A 120	-	(1)	102	168	...	...	
Other construction trades . . . . . 553-566, 573, 583-599	121	105	132	B 122	A 448	91	65	59	...	...	
Extractive occupations . . . . . 613-617	40	65	110	A 119	-	(1)	45	54	...	...	
Precision production occupations . . . . . 633-699	72	101	102	B 110	119	54	84	110	...	...	
Supervisors, production occupations . . . . . 633	59	104	72	106	(1)	-	-	112	...	...	
Precision metal and woodworking occupations . . . . . 634-659	38	85	110	B 126	187	129	89	105	...	...	
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	-	103	87	76	-	-	(1)	-	...	...	
Precision food production occupations . . . . . 686-688	75	114	183	88	-	-	86	194	...	...	
Other precision production occupations . . . . . 675-684, 689-699	214	131	81	98	-	-	190	101	...	...	

Machine operators, assemblers, and inspectors . . . . .	703-799	91	88	114	B 111	108	83	114	87	...	...
Machine operators and tenders, except precision . . . . .	703-779	104	A 77	96	A 109	99	84	89	73	...	...
Metal, plastic, and woodworking machine operators . . . . .	703-733	60	64	131	116	-	344	119	125	...	...
Printing machine operators . . . . .	734-737	200	66	259	A 74	-	-	-	179	...	...
Textile, apparel, and furnishing machine operators . . . . .	738-749	70	A 57	66	100	-	-	118	A 18	...	...
Machine operators, assorted materials . . . . .	753-779	119	94	72	B 117	209	57	80	62	...	...
Fabricators, assemblers, and hand working occupations . . . . .	783-795	71	128	169	B 121	( <sup>1</sup> )	99	224	112	...	...
Production inspectors, testers, samplers, and weighers . . . . .	796-799	-	99	162	110	-	-	-	145	...	...
Transportation and material moving occupations . . . . .	803-859	90	90	105	B 115	125	47	117	71	...	...
Motor vehicle operators . . . . .	803-814	87	83	93	B 113	64	-	137	71	...	...
Other transportation occupations . . . . .	823-859	94	105	131	B 117	240	142	74	70	...	...
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	122	92	119	104	185	118	77	B 48	...	...
Construction laborers . . . . .	869	89	79	69	111	358	-	44	44	...	...
Laborers, except construction . . . . .	889	141	90	119	103	155	121	81	B 34	...	...
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	103	117	A 199	94	-	303	118	109	...	...
Military . . . . .	905	-	A 63	117	103	( <sup>1</sup> )	93	75	95	...	...
Homemaker . . . . .	914	-	223	-	103	-	-	-	-	...	...
Occupation not reported . . . . .	913, 915-999	58	A 72	59	B 87	238	142	119	75	...	...

**Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Cancer of body of uterus (182)	Cancer of ovary (183)	Cancer of prostate (185)	Cancer of testis (186)	Cancer of bladder (188)	Cancer of kidney, urinary organs (189)	Cancer of brain, nervous system (191-192)	Hodgkin's disease (201)	Other malignant lymphoma (200, 202)	Multiple myeloma, immunoproliferative neoplasms (203)
Number of deaths										
All occupations . . . . .	...	...	3,453	47	803	767	714	153	929	511
Proportionate mortality ratios										
Executive, administrative, and managerial occupations . . . . . 003-037	...	...	B 115	A 247	110	B 129	B 132	145	111	98
Executive and administrative occupations . . . . . 003-019	...	...	B 117	A 266	114	A 131	108	150	117	111
Management related occupations . . . . . 023-037	...	...	108	( <sup>1</sup> )	96	122	B 237	128	89	46
Professional specialty occupations . . . . . 043-199	...	...	B 128	201	119	A 133	B 148	125	B 157	A 135
Architects, engineers, and scientists . . . . . 043-083	...	...	B 141	( <sup>1</sup> )	A 152	A 159	B 187	179	B 163	122
Health diagnosis and treatment occupations . . . . . 084-106	...	...	128	-	145	119	100	170	B 216	185
Teachers . . . . . 113-163	...	...	115	A 688	119	130	163	64	B 188	130
Other professional specialty occupations . . . . . 164-199	...	...	122	96	74	113	119	91	108	129
Technicians and related support . . . . . 203-235	...	...	120	( <sup>1</sup> )	107	101	145	133	124	96
Sales occupations . . . . . 243-285	...	...	A 89	179	95	A 124	117	93	115	122
Administrative support occupations, including clerical . . . . . 303-389	...	...	A 122	71	95	81	134	154	117	A 47
Secretaries, stenographers, and typists . . . . . 313-315	...	...	73	-	( <sup>1</sup> )	( <sup>1</sup> )	-	( <sup>1</sup> )	( <sup>1</sup> )	-
Records processing occupations . . . . . 325-344	...	...	111	-	93	141	81	-	85	54
Mail and message distributing occupations . . . . . 354-357	...	...	B 148	-	78	42	81	91	143	42
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	...	...	115	98	100	84	B 162	169	110	49
Service occupations . . . . . 403-469	...	...	91	-	111	78	78	93	87	116
Private household occupations . . . . . 403-407	...	...	109	-	-	-	-	-	( <sup>1</sup> )	-
Protective service occupations . . . . . 413-427	...	...	91	-	76	101	93	149	102	106
Food preparation and service occupations . . . . . 433-444	...	...	86	-	163	A 27	40	42	78	75
Health service occupations . . . . . 445-447	...	...	151	-	246	155	77	-	64	( <sup>1</sup> )
Cleaning and building service occupations . . . . . 448-455	...	...	88	-	120	67	81	118	75	133
Personal service occupations . . . . . 456-469	...	...	94	-	87	117	90	-	97	134
Farming, forestry, fishing occupations . . . . . 473-499	...	...	103	52	88	A 80	104	124	113	92
Farm and other agricultural occupations . . . . . 473-489	...	...	103	58	87	A 81	104	134	112	95
Forestry, fishing, and hunting occupations . . . . . 494-499	...	...	108	-	114	60	108	-	133	28
Precision production, craft and repair occupations . . . . . 503-699	...	...	101	57	105	102	91	76	92	98
Mechanics and repairers . . . . . 503-549	...	...	99	36	114	87	110	131	105	82
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	...	...	98	62	129	71	104	108	128	87
Other mechanics and repairers . . . . . 503, 518-549	...	...	100	-	99	104	116	160	80	77
Construction trades . . . . . 553-599	...	...	99	86	88	101	A 75	B 29	87	102
Carpenters and apprentices . . . . . 567-569	...	...	98	140	94	89	81	23	120	135
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	...	...	130	-	93	80	125	-	101	129
Painters, construction and maintenance . . . . . 579	...	...	93	309	117	103	38	53	A 31	59
Other construction trades . . . . . 553-566, 573, 583-599	...	...	93	-	73	118	63	35	71	78
Extractive occupations . . . . . 613-617	...	...	94	-	72	154	A 33	50	49	110
Precision production occupations . . . . . 633-699	...	...	107	43	125	105	107	103	98	102
Supervisors, production occupations . . . . . 633	...	...	A 131	-	149	109	A 163	125	109	87
Precision metal and woodworking occupations . . . . . 634-659	...	...	100	94	100	90	67	80	100	103
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	...	...	86	-	A 259	-	150	534	66	236
Precision food production occupations . . . . . 686-688	...	...	103	-	66	111	126	-	46	53
Other precision production occupations . . . . . 675-684, 689-699	...	...	95	-	145	167	86	82	117	120

Machine operators, assemblers, and inspectors . . . . .	703-799	...	...	94	216	78	110	79	107	86	101
Machine operators and tenders, except precision . . . . .	703-779	...	...	96	238	73	107	80	105	78	95
Metal, plastic, and woodworking machine operators . . . . .	703-733	...	...	93	( <sup>1</sup> )	125	A 178	100	204	B 12	100
Printing machine operators . . . . .	734-737	...	...	118	-	69	97	54	-	121	38
Textile, apparel, and furnishing machine operators . . . . .	738-749	...	...	A 74	( <sup>1</sup> )	A 46	101	57	99	84	61
Machine operators, assorted materials . . . . .	753-779	...	...	106	297	73	89	89	92	89	123
Fabricators, assemblers, and hand working occupations . . . . .	783-795	...	...	91	203	61	152	78	141	99	115
Production inspectors, testers, samplers, and weighers . . . . .	796-799	...	...	69	-	192	-	85	-	136	127
Transportation and material moving occupations . . . . .	803-859	...	...	A 86	30	120	107	85	53	91	A 69
Motor vehicle operators . . . . .	803-814	...	...	85	-	117	117	70	63	90	86
Other transportation occupations . . . . .	823-859	...	...	88	( <sup>1</sup> )	126	88	117	29	92	A 33
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	...	...	A 86	97	80	B 65	78	67	A 72	105
Construction laborers . . . . .	869	...	...	91	179	64	A 46	63	66	A 44	107
Laborers, except construction . . . . .	889	...	...	A 85	38	83	A 62	89	38	A 67	90
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	...	...	86	( <sup>1</sup> )	94	110	68	165	142	158
Military . . . . .	905	...	...	B 143	96	116	127	86	169	103	133
Homemaker . . . . .	914	...	...	A-	-	149	-	-	-	-	-
Occupation not reported . . . . .	913, 915-999	...	...	B 70	63	114	70	77	117	B 49	102

**Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Leukemia (204-208)	All other cancers (152... 193-199)	Diabetes mellitus (250)	Aplastic anemia (284)	Diseases of heart (390-398, 402, 404-429)	Hypertensive heart disease (402)	Hypertensive heart, renal disease (404)	Ischemic heart disease (410-414)	Acute myocardial infarction (410)	All other ischemic heart disease (411-414)
Number of deaths										
All occupations . . . . .	1,179	2,843	1,930	63	53,414	1,065	165	39,510	23,959	15,551
Proportionate mortality ratios										
Executive, administrative, and managerial occupations . . . . . 003-037	B 125	96	98	89	101	111	120	B 104	99	B 111
Executive and administrative occupations . . . . . 003-019	A 121	98	105	45	101	106	110	A 104	99	B 111
Management related occupations . . . . . 023-037	140	89	69	265	101	133	161	104	99	A 111
Professional specialty occupations . . . . . 043-199	100	95	104	107	102	A 132	88	101	97	A 107
Architects, engineers, and scientists . . . . . 043-083	112	107	86	-	100	B 173	39	99	96	105
Health diagnosis and treatment occupations . . . . . 084-106	86	98	116	-	95	103	-	94	89	102
Teachers . . . . . 113-163	111	73	122	( <sup>1</sup> )	101	112	120	104	105	102
Other professional specialty occupations . . . . . 164-199	88	95	106	235	B 107	119	143	104	97	B 114
Technicians and related support . . . . . 203-235	104	85	86	-	101	94	-	105	103	111
Sales occupations . . . . . 243-285	114	98	112	A 180	A 103	99	89	B 104	102	A 106
Administrative support occupations, including clerical . . . . . 303-389	118	110	107	86	103	88	122	A 104	101	B 110
Secretaries, stenographers, and typists . . . . . 313-315	-	B 390	-	-	106	( <sup>1</sup> )	( <sup>1</sup> )	104	87	127
Records processing occupations . . . . . 325-344	67	106	101	-	101	147	( <sup>1</sup> )	103	95	113
Mail and message distributing occupations . . . . . 354-357	115	106	81	( <sup>1</sup> )	106	52	66	A 109	A 114	101
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	131	104	121	68	102	92	115	103	96	B 113
Service occupations . . . . . 403-469	100	106	B 122	122	99	104	A 47	99	96	103
Private household occupations . . . . . 403-407	-	93	-	-	110	-	-	118	122	112
Protective service occupations . . . . . 413-427	97	97	B 181	179	101	107	79	104	107	98
Food preparation and service occupations . . . . . 433-444	85	111	A 146	-	95	125	-	92	B 81	110
Health service occupations . . . . . 445-447	199	115	127	-	96	112	-	90	96	81
Cleaning and building service occupations . . . . . 448-455	108	103	87	57	98	100	31	98	A 92	107
Personal service occupations . . . . . 456-469	85	138	117	433	99	101	128	97	94	101
Farming, forestry, fishing occupations . . . . . 473-499	A 114	94	93	100	B 103	B 81	118	B 103	B 114	B 90
Farm and other agricultural occupations . . . . . 473-489	A 116	93	92	104	B 103	B 80	123	B 104	B 115	B 89
Forestry, fishing, and hunting occupations . . . . . 494-499	50	110	114	-	97	99	-	101	104	96
Precision production, craft and repair occupations . . . . . 503-699	93	A 109	95	75	B 98	93	104	B 97	B 96	99
Mechanics and repairers . . . . . 503-549	88	114	99	103	A 97	88	171	96	96	97
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	78	111	88	198	B 94	92	149	A 94	95	93
Other mechanics and repairers . . . . . 503, 518-549	99	118	112	-	100	85	196	99	98	100
Construction trades . . . . . 553-599	90	107	87	57	B 95	A 79	73	B 94	B 93	96
Carpenters and apprentices . . . . . 567-569	80	87	80	-	A 95	74	86	B 93	96	B 89
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	97	119	136	283	96	84	142	98	96	103
Painters, construction and maintenance . . . . . 579	91	111	111	-	94	74	67	95	A 86	109
Other construction trades . . . . . 553-566, 573, 583-599	96	119	B 69	50	A 96	82	41	B 92	B 90	96
Extractive occupations . . . . . 613-617	129	89	104	-	A 93	104	49	B 90	102	B 73
Precision production occupations . . . . . 633-699	94	110	100	94	102	113	110	A 104	100	B 109
Supervisors, production occupations . . . . . 633	109	112	99	89	A 106	109	121	B 109	105	B 116
Precision metal and woodworking occupations . . . . . 634-659	87	109	98	-	101	102	176	99	98	100
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	50	148	91	( <sup>1</sup> )	103	164	-	106	103	110
Precision food production occupations . . . . . 686-688	93	97	105	( <sup>1</sup> )	104	85	75	107	99	A 120
Other precision production occupations . . . . . 675-684, 689-699	104	107	105	( <sup>1</sup> )	98	152	-	104	98	113

Machine operators, assemblers, and inspectors . . . . .	703-799	91	92	98	41	99	A 122	132	99	97	104
Machine operators and tenders, except precision . . . . .	703-779	85	90	104	55	99	A 128	146	99	97	102
Metal, plastic, and woodworking machine operators . . . . .	703-733	46	84	141	-	97	154	266	101	97	107
Printing machine operators . . . . .	734-737	96	88	143	-	101	125	255	103	99	109
Textile, apparel, and furnishing machine operators . . . . .	738-749	103	101	105	200	98	97	36	96	94	99
Machine operators, assorted materials . . . . .	753-779	85	87	85	-	100	A 136	156	99	99	100
Fabricators, assemblers, and hand working occupations . . . . .	783-795	98	96	75	-	95	98	105	97	92	104
Production inspectors, testers, samplers, and weighers . . . . .	796-799	149	96	102	-	107	124	-	A 114	101	B 134
Transportation and material moving occupations . . . . .	803-859	A 76	90	93	151	99	117	120	98	99	96
Motor vehicle operators . . . . .	803-814	A 69	91	95	157	99	125	170	98	98	99
Other transportation occupations . . . . .	823-859	89	88	90	141	98	101	28	98	102	A 90
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	A 75	105	97	148	98	98	56	B 95	B 94	97
Construction laborers . . . . .	869	75	A 127	76	255	A 94	77	52	B 89	B 89	91
Laborers, except construction . . . . .	889	A 70	89	103	35	99	100	62	98	96	101
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	99	127	113	422	99	125	40	93	95	91
Military . . . . .	905	112	A 127	79	-	95	86	117	94	94	94
Homemaker . . . . .	914	106	134	95	-	96	53	629	88	80	98
Occupation not reported . . . . .	913, 915-999	80	92	115	42	99	90	70	B 94	A 93	96

**Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.**

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Occupation	All other diseases of heart (390-398, 415-429)	Hypertension with or without renal disease (401,403)	Cerebro-vascular diseases (430-438)	Atherosclerosis (440)	Pneumonia and influenza (480-487)	Chronic obstructive pulmonary diseases (490-496)	Pneumo-coniases and pneumopathy (500-505)	Ulcer of stomach and duodenum (531-533)	Chronic liver disease and cirrhosis (571)	Nephritis and nephrosis (580-589)
Number of deaths										
All occupations . . . . .	12,674	497	9,108	1,346	4,023	6,603	121	470	1,896	1,381
Proportionate mortality ratios										
Executive, administrative, and managerial occupations . . . . . 003-037	B 91	103	99	91	95	B 84	64	107	95	88
Executive and administrative occupations . . . . . 003-019	B 91	106	100	91	91	B 79	57	107	91	90
Management related occupations . . . . . 023-037	91	90	94	92	114	102	91	107	112	81
Professional specialty occupations . . . . . 043-199	103	116	99	106	91	B 67	B -	118	98	91
Architects, engineers, and scientists . . . . . 043-083	100	107	106	112	88	B 71	-	66	94	76
Health diagnosis and treatment occupations . . . . . 084-106	98	48	100	74	108	B 59	-	115	73	65
Teachers . . . . . 113-163	91	99	92	135	95	B 52	-	120	118	114
Other professional specialty occupations . . . . . 164-199	A 114	A 162	97	103	84	B 73	-	A 170	100	102
Technicians and related support . . . . . 203-235	87	121	98	28	A 53	77	( <sup>1</sup> )	115	76	136
Sales occupations . . . . . 243-285	100	91	98	90	B 84	B 85	A 28	71	97	A 82
Administrative support occupations, including clerical . . . . . 303-389	99	84	92	108	91	90	-	113	98	98
Secretaries, stenographers, and typists . . . . . 313-315	99	-	57	84	60	21	-	594	-	186
Records processing occupations . . . . . 325-344	90	56	119	84	107	81	-	54	96	75
Mail and message distributing occupations . . . . . 354-357	101	22	A 77	90	93	89	-	135	59	78
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	99	116	95	121	88	94	-	99	114	108
Service occupations . . . . . 403-469	99	114	101	103	A 88	102	A 26	106	109	118
Private household occupations . . . . . 403-407	111	-	103	B 538	90	-	-	( <sup>1</sup> )	149	-
Protective service occupations . . . . . 413-427	93	72	107	76	85	91	-	96	103	A 142
Food preparation and service occupations . . . . . 433-444	99	125	84	141	98	A 133	-	144	137	131
Health service occupations . . . . . 445-447	111	194	108	57	A 16	135	-	( <sup>1</sup> )	94	79
Cleaning and building service occupations . . . . . 448-455	101	122	103	102	84	105	30	98	104	105
Personal service occupations . . . . . 456-469	103	147	100	90	109	82	( <sup>1</sup> )	90	98	129
Farming forestry, fishing occupations . . . . . 473-499	103	105	B 111	A 110	101	B 91	B 42	A 80	B 81	A 110
Farm and other agricultural occupations . . . . . 473-489	A 104	105	B 112	109	101	B 91	B 44	81	B 79	110
Forestry, fishing, and hunting occupations . . . . . 494-499	87	119	99	134	96	99	-	59	100	127
Precision production, craft and repair occupations . . . . . 503-699	99	94	97	94	98	B 108	B 304	114	103	96
Mechanics and repairers . . . . . 503-549	99	89	108	105	97	104	36	112	112	100
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	93	116	99	105	101	108	70	90	A 132	117
Other mechanics and repairers . . . . . 503, 518-549	105	59	A 117	105	93	100	-	135	89	83
Construction trades . . . . . 553-599	102	112	98	92	94	B 115	92	120	111	89
Carpenters and apprentices . . . . . 567-569	103	B 183	101	92	88	B 123	28	118	121	71
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	88	106	100	71	96	102	302	101	119	60
Painters, construction and maintenance . . . . . 579	93	103	100	99	108	B 134	-	107	136	82
Other construction trades . . . . . 553-566, 573, 583-599	108	57	95	95	95	107	106	134	94	117
Extractive occupations . . . . . 613-617	102	67	84	85	101	B 155	B 3,759	81	70	114
Precision production occupations . . . . . 633-699	96	78	A 91	93	102	93	48	115	89	98
Supervisors, production occupations . . . . . 633	93	74	89	90	86	A 81	45	83	86	103
Precision metal and woodworking occupations . . . . . 634-659	107	57	92	82	101	94	58	124	89	105
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	90	107	80	112	99	119	-	171	61	55
Precision food production occupations . . . . . 686-688	95	184	80	134	103	101	-	113	81	113
Other precision production occupations . . . . . 675-684, 689-699	B 77	44	103	90	129	95	81	128	108	77

Machine operators, assemblers, and inspectors . . . . .	703-799	A 94	97	105	95	106	B 111	74	81	111	96
Machine operators and tenders, except precision . . . . .	703-779		96	86	107	101	110	85	89	111	98
Metal, plastic, and woodworking machine operators . . . . .	703-733	A 78	127	100	116	117	120	184	47	130	81
Printing machine operators . . . . .	734-737		90	210	121	71	B 162	90	-	121	136
Textile, apparel, and furnishing machine operators . . . . .	738-749		107	74	B 124	88	107	A 120	50	107	108
Machine operators, assorted materials . . . . .	753-779		97	57	97	111	98	104	90	86	102
Fabricators, assemblers, and hand working occupations . . . . .	783-795		89	148	96	73	100	A 122	-	46	113
Production inspectors, testers, samplers, and weighers . . . . .	796-799		87	94	95	75	78	104	(1)	94	104
Transportation and material moving occupations . . . . .	803-859		98	110	A 90	104	110	B 129	64	129	91
Motor vehicle operators . . . . .	803-814		98	129	A 89	117	112	B 132	60	124	86
Other transportation occupations . . . . .	823-859		98	72	92	85	107	B 124	71	140	101
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	A 106	102	95	96	96	B 118	B 123	45	76	110
Construction laborers . . . . .	869		111	110	93	88	107	B 130	-	78	A 136
Laborers, except construction . . . . .	889		102	94	98	95	B 123	B 120	57	95	94
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888		111	119	85	112	113	A 123	75	A -	115
Military . . . . .	905		100	81	B 75	73	109	99	-	B 212	B 162
Homemaker . . . . .	914		115	(1)	102	104	62	87	(1)	(1)	221
Occupation not reported . . . . .	913, 915-999	B 115	69	97	116	116	B 148	B 125	117	99	84
											B 159

**Table 1. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Accidents and adverse effects (E800–E949)	Motor vehicle accidents (E810–E825)	Accidents mainly of industrial type (E846 . . . E923–E926)	Other accidents (E800–E807 . . . E927–E949)	Suicide (E950–E959)	Homicide and legal intervention (E960–E978)	All other causes (Residual)
Number of deaths							
All occupations . . . . .	7,321	3,587	657	3,077	3,216	1,408	14,842
Proportionate mortality ratios							
Executive, administrative, and managerial occupations . . . . . 003–037	B 88	90	B 58	91	97	A 74	99
Executive and administrative occupations . . . . . 003–019	92	100	A 61	91	96	80	97
Management related occupations . . . . . 023–037	B 68	B 47	45	92	98	44	107
Professional specialty occupations . . . . . 043–199	B 88	90	B 54	93	101	B 64	A 107
Architects, engineers, and scientists . . . . . 043–083	84	111	A 36	A 67	94	B 37	104
Health diagnosis and treatment occupations . . . . . 084–106	104	101	67	114	B 156	63	114
Teachers . . . . . 113–163	81	77	91	82	90	63	B 119
Other professional specialty occupations . . . . . 164–199	89	A 76	A 45	112	93	84	100
Technicians and related support . . . . . 203–235	107	98	75	130	B 135	84	89
Sales occupations . . . . . 243–285	94	107	B 62	A 86	107	A 126	102
Administrative support occupations, including clerical . . . . . 303–389	B 80	84	B 37	86	97	B 63	107
Secretaries, stenographers, and typists . . . . . 313–315	66	95	–	50	–	–	126
Records processing occupations . . . . . 325–344	90	105	–	91	112	34	122
Mail and message distributing occupations . . . . . 354–357	83	94	49	80	96	56	A 118
Other administrative support occupations . . . . . 303–309, 316–323, 345–353, 359–389	B 79	A 78	A 40	89	97	69	100
Service occupations . . . . . 403–469	93	95	B 47	100	B 118	105	101
Private household occupations . . . . . 403–407	98	141	–	65	109	103	80
Protective service occupations . . . . . 413–427	87	102	A 35	82	116	100	95
Food preparation and service occupations . . . . . 433–444	91	90	B 17	110	116	122	102
Health service occupations . . . . . 445–447	73	60	–	105	167	60	108
Cleaning and building service occupations . . . . . 448–455	101	100	84	106	116	98	103
Personal service occupations . . . . . 456–469	89	91	24	99	119	117	104
Farming, forestry, fishing occupations . . . . . 473–499	B 128	B 116	B 258	B 118	106	89	98
Farm and other agricultural occupations . . . . . 473–489	B 125	A 113	B 248	B 117	108	87	99
Forestry, fishing, and hunting occupations . . . . . 494–499	B 155	B 142	B 361	129	88	97	A 78
Precision production, craft and repair occupations . . . . . 503–699	B 106	103	B 139	103	100	95	B 93
Mechanics and repairers . . . . . 503–549	98	99	109	94	109	93	95
Vehicle and mobile equipment mechanics and repairers . . . . . 505–517	95	100	111	86	118	112	96
Other mechanics and repairers . . . . . 518–549	101	98	106	104	98	A 62	93
Construction trades . . . . . 553–599	B 116	A 110	B 144	B 118	102	102	B 92
Carpenters and apprentices . . . . . 567–569	111	112	115	109	111	130	98
Electricians, apprentices, and electrical power installers and repairers . . . . . 575–577	113	97	B 236	102	100	84	91
Painters, construction and maintenance . . . . . 579	108	93	83	A 133	110	85	B 76
Other construction trades . . . . . 553–566, 573, 583–599	B 124	A 118	B 153	B 126	93	97	93
Extractive occupations . . . . . 613–617	B 141	98	B 456	124	84	126	B 76
Precision production occupations . . . . . 633–699	A 89	96	89	A 84	91	78	97
Supervisors, production occupations . . . . . 633	B 73	A 65	105	73	75	A 45	97
Precision metal and woodworking occupations . . . . . 634–659	102	113	98	92	86	87	93
Precision textile, apparel, and furnishings machine workers . . . . . 666–674	114	115	74	120	100	163	95
Precision food production occupations . . . . . 686–688	77	90	26	73	95	118	115
Other precision production occupations . . . . . 675–684, 689–699	84	95	80	73	130	29	95

Machine operators, assemblers, and inspectors . . . . .	703-799	101	106	84	98	98	A 84	95
Machine operators and tenders, except precision . . . . .	703-779	97	104	A 65	96	97	86	98
Metal, plastic, and woodworking machine operators . . . . .	703-733	90	90	61	96	97	96	97
Printing machine operators . . . . .	734-737	85	94	35	86	94	116	93
Textile, apparel, and furnishing machine operators . . . . .	738-749	104	119	70	95	92	82	98
Machine operators, assorted materials . . . . .	753-779	99	104	68	99	99	82	99
Fabricators, assemblers, and hand working occupations . . . . .	783-795	111	111	142	103	104	86	B 83
Production inspectors, testers, samplers, and weighers . . . . .	796-799	96	107	66	89	94	36	99
Transportation and material moving occupations . . . . .	803-859	A 110	B 140	109	B 74	89	110	96
Motor vehicle operators . . . . .	803-814	A 109	B 155	72	B 64	A 83	107	99
Other transportation occupations . . . . .	823-859	110	106	B 197	96	103	117	90
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	105	101	109	109	A 90	B 127	100
Construction laborers . . . . .	869	B 119	110	A 147	B 126	82	B 131	95
Laborers, except construction . . . . .	889	102	98	111	106	87	B 135	101
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	89	96	A 34	92	115	98	100
Military . . . . .	905	95	99	B 12	111	95	B 62	105
Homemaker . . . . .	914	82	69	-	112	60	84	A 142
Occupation not reported . . . . .	913, 915-999	B 73	B 64	B 38	99	95	113	B 136

<sup>1</sup>Proportionate mortality ratio not computed since observed deaths equaled 1 and expected deaths were less than 1.0.  
A-Proportionate mortality ratio is significantly different from 100 at the 0.05 level of significance (see Technical notes).  
B-Proportionate mortality ratio is significantly different from 100 at the 0.01 level of significance (see Technical notes).

**Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Number of deaths	Tuberculosis (010-018, 137)	Septicemia (038)	All cancers (140-208)	Cancer of oral cavity (140-149)	Cancer of esophagus (150)	Cancer of stomach (151)	Cancer of colon (153)	Cancer of rectum (154)	Cancer of liver (155)
Number of deaths										
All occupations . . . . .	129,082	100	1,096	27,667	374	272	717	3,433	517	350
Proportionate mortality ratios										
Executive, administrative, and managerial occupations . . . . . 003-037	3,687	40	104	B 121	94	146	134	B 129	124	152
Executive and administrative occupations . . . . . 003-019	2,874	51	87	B 121	115	103	124	B 145	137	152
Management related occupations . . . . . 023-037	813	-	171	B 122	32	290	167	76	80	151
Professional specialty occupations . . . . . 043-199	9,153	79	B 62	B 116	83	89	96	B 119	113	124
Architects, engineers, and scientists . . . . . 043-083	85	-	( <sup>1</sup> )	129	( <sup>1</sup> )	-	-	138	-	( <sup>1</sup> )
Health diagnosis and treatment occupations . . . . . 084-106	2,167	132	65	105	85	86	A 41	101	108	63
Teachers . . . . . 113-163	5,482	52	A 64	B 120	66	77	126	B 128	125	140
Other professional specialty occupations . . . . . 164-199	1,419	( <sup>1</sup> )	45	B 123	117	136	78	114	86	152
Technicians and related support . . . . . 203-235	1,250	-	150	105	72	109	70	91	75	105
Sales occupations . . . . . 243-285	5,001	147	96	B 111	79	91	103	112	107	62
Administrative support occupations, including clerical . . . . . 303-389	9,046	83	82	B 117	110	120	93	B 120	124	86
Secretaries, stenographers, and typists . . . . . 313-315	3,416	226	A 57	B 119	A 156	89	94	B 128	144	85
Records processing occupations . . . . . 325-344	1,902	-	109	B 116	89	107	75	108	141	86
Mail and message distributing occupations . . . . . 354-357	179	-	137	117	( <sup>1</sup> )	-	( <sup>1</sup> )	128	-	-
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	3,549	-	88	B 117	72	164	101	118	102	92
Service occupations . . . . . 403-469	12,091	99	112	A 97	111	110	106	A 90	105	83
Private household occupations . . . . . 403-407	4,317	106	116	B 91	70	83	91	88	103	107
Protective service occupations . . . . . 413-427	114	-	( <sup>1</sup> )	103	A 628	-	-	192	-	-
Food preparation and service occupations . . . . . 433-444	3,205	69	117	96	B 180	155	122	89	95	101
Health service occupations . . . . . 445-447	1,814	59	133	93	75	101	80	82	76	52
Cleaning and building service occupations . . . . . 448-455	1,212	190	90	106	25	124	135	92	168	56
Personal service occupations . . . . . 456-469	1,429	85	73	A 111	107	115	141	98	134	46
Farming, forestry, fishing occupations . . . . . 473-499	951	70	62	97	95	114	118	76	157	119
Farm and other agricultural occupations . . . . . 473-489	946	70	63	97	96	114	118	76	158	120
Forestry, fishing, and hunting occupations . . . . . 494-499	5	-	-	-	-	-	-	-	-	-
Precision production, craft and repair occupations . . . . . 503-699	1,735	161	115	B 113	92	137	63	104	110	62
Mechanics and repairers . . . . . 503-549	108	( <sup>1</sup> )	242	105	-	793	-	123	-	-
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	15	-	-	56	-	( <sup>1</sup> )	-	( <sup>1</sup> )	-	-
Other mechanics and repairers . . . . . 503, 518-549	93	( <sup>1</sup> )	280	112	-	( <sup>1</sup> )	-	108	-	-
Construction trades . . . . . 553-599	77	-	-	127	A 880	( <sup>1</sup> )	-	149	-	-
Carpenters and apprentices . . . . . 567-569	18	-	-	134	-	( <sup>1</sup> )	-	( <sup>1</sup> )	-	-
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	11	-	-	118	-	-	-	-	-	-
Painters, construction and maintenance . . . . . 579	22	-	-	148	-	-	-	( <sup>1</sup> )	-	-
Other construction trades . . . . . 553-566, 573, 583-599	26	-	-	105	B 2,595	-	-	( <sup>1</sup> )	-	-
Extractive occupations . . . . . 613-617	15	-	-	92	-	-	-	-	-	-
Precision production occupations . . . . . 633-699	1,535	91	113	B 113	63	62	71	101	126	71
Supervisors, production occupations . . . . . 633	238	-	172	113	-	( <sup>1</sup> )	71	128	278	-
Precision metal and woodworking occupations . . . . . 634-659	173	-	79	A 128	-	-	279	129	343	( <sup>1</sup> )
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	772	( <sup>1</sup> )	121	109	56	69	51	100	71	57
Precision food production occupations . . . . . 686-688	153	-	151	113	-	-	-	96	-	-
Other precision production occupations . . . . . 675-684, 689-699	199	-	-	108	251	-	-	50	-	( <sup>1</sup> )

Machine operators, assemblers, and inspectors . . . . .	703-799	6,878	144	101	101	116	102	120	90	87	116
Machine operators and tenders, except precision . . . . .	703-779	5,742	150	97	100	96	107	115	95	81	136
Metal, plastic, and woodworking machine operators . . . . .	703-733	139	-	-	91	( <sup>1</sup> )	( <sup>1</sup> )	353	73	-	-
Printing machine operators . . . . .	734-737	105	-	( <sup>1</sup> )	A 135	-	-	( <sup>1</sup> )	128	427	-
Textile, apparel, and furnishing machine operators . . . . .	738-749	4,401	169	103	97	101	111	104	97	A 48	135
Machine operators, assorted materials . . . . .	753-779	1,097	( <sup>1</sup> )	78	109	72	76	121	86	181	169
Fabricators, assemblers, and hand working occupations . . . . .	783-795	577	-	160	106	129	74	A 257	70	186	52
Production inspectors, testers, samplers, and weighers . . . . .	796-799	559	( <sup>1</sup> )	93	107	A 292	80	30	65	39	-
Transportation and material moving occupations . . . . .	803-859	169	-	77	116	-	-	99	66	413	-
Motor vehicle operators . . . . .	803-814	122	-	( <sup>1</sup> )	118	-	-	( <sup>1</sup> )	60	A 546	-
Other transportation occupations . . . . .	823-859	47	-	-	112	-	-	-	83	-	-
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	1,668	68	89	99	69	147	A 30	96	83	59
Construction laborers . . . . .	869	29	-	( <sup>1</sup> )	105	-	-	-	335	-	-
Laborers, except construction . . . . .	889	1,216	89	72	98	71	163	40	96	77	80
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	423	-	120	102	66	( <sup>1</sup> )	-	83	106	-
Military . . . . .	905	73	-	( <sup>1</sup> )	122	A 904	-	-	111	-	-
Homemaker . . . . .	914	74,124	101	103	B 94	100	93	100	A 97	94	104
Occupation not reported . . . . .	913, 915-999	3,256	128	108	B 75	104	88	88	80	82	76

**Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Cancer of gall-bladder (156)	Cancer of pancreas (157)	Cancer of larynx (161)	Cancer of trachea, bronchus, lung (162)	Cancer of pleura (163)	Cancer of bone (170)	Cancer of connective tissue (171)	Malignant melanoma of skin (172)	Cancer of female breast (174)	Cancer of cervix uteri (180)
Number of deaths										
All occupations . . . . .	367	1,532	88	4,466	13	56	200	301	5,110	606
Proportionate mortality ratios										
Executive, administrative, and managerial occupations . . . . . 003-037	98	118	98	B 142	-	-	62	124	B 128	79
Executive and administrative occupations . . . . . 003-019	92	117	88	B 135	-	-	62	143	B 127	81
Management related occupations . . . . . 023-037	119	121	( <sup>1</sup> )	B 162	-	-	59	70	A 131	74
Professional specialty occupations . . . . . 043-199	B 46	B 127	88	A 88	-	105	144	113	B 153	B 58
Architects, engineers, and scientists . . . . . 043-083	-	( <sup>1</sup> )	-	A 242	-	-	-	-	119	-
Health diagnosis and treatment occupations . . . . . 084-106	31	A 137	117	100	-	-	182	114	116	A 43
Teachers . . . . . 113-163	52	122	69	B 69	-	101	110	145	B 170	70
Other professional specialty occupations . . . . . 164-199	49	132	97	113	-	283	206	26	B 164	54
Technicians and related support . . . . . 203-235	201	131	96	119	-	( <sup>1</sup> )	112	48	90	97
Sales occupations . . . . . 243-285	118	100	53	B 129	-	79	122	123	112	96
Administrative support occupations, including clerical . . . . . 303-389	65	97	A 171	B 117	-	140	100	101	B 130	93
Secretaries, stenographers, and typists . . . . . 313-315	75	94	210	B 122	-	105	94	134	B 136	91
Records processing occupations . . . . . 325-344	34	91	191	104	-	-	93	85	B 136	92
Mail and message distributing occupations . . . . . 354-357	( <sup>1</sup> )	95	-	29	-	( <sup>1</sup> )	-	( <sup>1</sup> )	110	-
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	66	103	133	B 123	-	196	114	71	B 124	99
Service occupations . . . . . 403-469	107	102	95	A 111	60	81	106	105	B 84	100
Private household occupations . . . . . 403-407	121	99	64	90	-	-	82	83	89	69
Protective service occupations . . . . . 413-427	-	70	-	73	-	-	-	-	104	100
Food preparation and service occupations . . . . . 433-444	99	93	99	108	-	96	143	66	B 78	114
Health service occupations . . . . . 445-447	19	105	53	113	( <sup>1</sup> )	175	73	A 188	86	140
Cleaning and building service occupations . . . . . 448-455	227	100	168	B 141	-	( <sup>1</sup> )	72	38	80	146
Personal service occupations . . . . . 456-469	122	137	162	B 135	-	-	179	169	86	67
Farming, forestry, fishing occupations . . . . . 473-499	89	93	( <sup>1</sup> )	90	-	-	-	70	103	83
Farm and other agricultural occupations . . . . . 473-489	89	93	( <sup>1</sup> )	90	-	-	-	71	104	84
Forestry, fishing, and hunting occupations . . . . . 494-499	-	-	-	-	-	-	-	-	-	-
Precision production, craft and repair occupations . . . . . 503-699	118	110	-	A 128	( <sup>1</sup> )	-	104	91	A 122	130
Mechanics and repairers . . . . . 503-549	-	137	-	99	-	-	( <sup>1</sup> )	-	143	-
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	-	-	-	-	-	-	-	-	-	-
Other mechanics and repairers . . . . . 503, 518-549	-	159	-	113	-	-	( <sup>1</sup> )	-	160	-
Construction trades . . . . . 553-599	-	( <sup>1</sup> )	-	106	( <sup>1</sup> )	-	-	-	153	( <sup>1</sup> )
Carpenters and apprentices . . . . . 567-569	-	-	-	( <sup>1</sup> )	-	-	-	-	( <sup>1</sup> )	-
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	-	-	-	-	-	-	-	-	-	-
Painters, construction and maintenance . . . . . 579	-	( <sup>1</sup> )	-	( <sup>1</sup> )	( <sup>1</sup> )	-	-	-	286	( <sup>1</sup> )
Other construction trades . . . . . 553-566, 573, 583-599	-	-	-	( <sup>1</sup> )	-	-	-	-	94	-
Extractive occupations . . . . . 613-617	-	-	-	364	-	-	-	-	-	-
Precision production occupations . . . . . 633-699	134	109	-	A 129	-	-	81	105	120	137
Supervisors, production occupations . . . . . 633	( <sup>1</sup> )	A 286	-	100	-	-	-	-	A 152	122
Precision metal and woodworking occupations . . . . . 634-659	-	81	-	145	-	-	-	-	114	167
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	191	74	-	118	-	-	( <sup>1</sup> )	227	109	40
Precision food production occupations . . . . . 686-688	( <sup>1</sup> )	107	-	A 197	-	-	-	-	100	( <sup>1</sup> )
Other precision production occupations . . . . . 675-684, 689-699	-	37	-	132	-	-	( <sup>1</sup> )	( <sup>1</sup> )	122	317

Machine operators, assemblers, and inspectors . . . . .	703-799	91	103	69	103	-	60	123	61	94	A 134
Machine operators and tenders, except precision . . . . .	703-779	98	104	86	99	-	74	130	62	A 88	A 138
Metal, plastic, and woodworking machine operators . . . . .	703-733	-	104	( <sup>1</sup> )	143	-	-	( <sup>1</sup> )	-	64	( <sup>1</sup> )
Printing machine operators . . . . .	734-737	-	143	-	171	-	-	( <sup>1</sup> )	-	115	-
Textile, apparel, and furnishing machine operators . . . . .	738-749	83	105	59	94	-	52	125	77	A 84	134
Machine operators, assorted materials . . . . .	753-779	182	97	95	104	-	( <sup>1</sup> )	86	29	99	166
Fabricators, assemblers, and hand working occupations . . . . .	783-795	-	89	-	134	-	-	83	101	102	126
Production inspectors, testers, samplers, and weighers . . . . .	796-799	108	105	-	106	-	-	( <sup>1</sup> )	-	A 139	103
Transportation and material moving occupations . . . . .	803-859	-	241	-	A 168	( <sup>1</sup> )	-	-	( <sup>1</sup> )	114	166
Motor vehicle operators . . . . .	803-814	-	261	-	169	-	-	-	( <sup>1</sup> )	93	145
Other transportation occupations . . . . .	823-859	-	( <sup>1</sup> )	-	164	( <sup>1</sup> )	-	-	-	193	( <sup>1</sup> )
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	186	106	68	118	( <sup>1</sup> )	-	144	60	A 77	145
Construction laborers . . . . .	869	-	-	-	( <sup>1</sup> )	-	-	-	-	-	-
Laborers, except construction . . . . .	889	142	88	94	121	( <sup>1</sup> )	-	158	28	A 72	147
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	316	165	-	109	-	-	( <sup>1</sup> )	151	96	150
Military . . . . .	905	-	( <sup>1</sup> )	-	243	-	-	-	-	88	( <sup>1</sup> )
Homemaker . . . . .	914	105	A 95	97	B 90	146	102	96	104	B 91	104
Occupation not reported . . . . .	913, 915-999	138	84	207	B 74	-	239	A 34	50	B 62	71

**Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes.]

Occupation	Cancer of body of uterus (182)	Cancer of ovary (183)	Cancer of prostate (185)	Cancer of testis (186)	Cancer of bladder (188)	Cancer of kidney, urinary organs (189)	Cancer of brain, nervous system (191-192)	Hodgkin's disease (201)	Other malignant lymphoma (200, 202)	Multiple myeloma, immuno- proliferative neoplasms (203)	
	Number of deaths										
All occupations . . . . .	458	1,569	...	...	426	475	633	79	924	522	
	Proportionate mortality ratios										
Executive, administrative, and managerial occupations . . . . . 003-037	142	123	...	...	123	57	101	36	A 141	107	
Executive and administrative occupations . . . . . 003-019	130	A 135	...	...	125	A 42	97	48	137	107	
Management related occupations . . . . . 023-037	182	86	...	...	114	105	115	-	152	107	
Professional specialty occupations . . . . . 043-199	116	B 146	...	...	86	104	116	B 203	116	B 150	
Architects, engineers, and scientists . . . . . 043-083	-	-	...	...	B 1,357	-	-	-	-	-	
Health diagnosis and treatment occupations . . . . . 084-106	86	A 137	...	...	42	92	133	194	129	141	
Teachers . . . . . 113-163	107	B 155	...	...	82	126	124	191	114	B 162	
Other professional specialty occupations . . . . . 164-199	206	142	...	...	109	57	76	279	113	126	
Technicians and related support . . . . . 203-235	131	92	...	...	77	60	A 170	179	153	133	
Sales occupations . . . . . 243-285	123	120	...	...	95	105	128	82	91	109	
Administrative support occupations, including clerical . . . . . 303-389	123	A 119	...	...	111	96	B 139	158	104	120	
Secretaries, stenographers, and typists . . . . . 313-315	113	104	...	...	71	99	131	135	95	121	
Records processing occupations . . . . . 325-344	135	123	...	...	94	95	152	70	141	72	
Mail and message distributing occupations . . . . . 354-357	483	B 349	...	...	(1)	-	B 504	-	75	276	
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	111	121	...	...	A 157	97	125	227	93	138	
Service occupations . . . . . 403-469	97	97	...	...	116	90	85	54	97	85	
Private household occupations . . . . . 403-407	106	96	...	...	96	71	64	144	63	93	
Protective service occupations . . . . . 413-427	-	112	...	...	594	-	221	-	(1)	-	
Food preparation and service occupations . . . . . 433-444	111	97	...	...	126	120	79	39	103	A 48	
Health service occupations . . . . . 445-447	92	88	...	...	120	88	51	-	96	71	
Cleaning and building service occupations . . . . . 448-455	57	102	...	...	154	44	152	(1)	129	85	
Personal service occupations . . . . . 456-469	87	107	...	...	86	105	114	-	118	172	
Farming, forestry, fishing occupations . . . . . 473-499	51	90	...	...	98	238	142	-	115	46	
Farm and other agricultural occupations . . . . . 473-489	51	91	...	...	98	240	144	-	116	46	
Forestry, fishing, and hunting occupations . . . . . 494-499	-	-	...	...	-	-	-	-	-	-	
Precision production, craft and repair occupations . . . . . 503-699	A 190	112	...	...	87	88	74	175	106	A 183	
Mechanics and repairers . . . . . 503-549	(1)	58	...	...	-	-	-	-	-	(1)	
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	-	-	...	...	-	-	-	-	-	-	
Other mechanics and repairers . . . . . 503, 518-549	(1)	66	...	...	-	-	-	-	-	(1)	
Construction trades . . . . . 553-599	-	96	...	...	-	-	-	-	-	(1)	
Carpenters and apprentices . . . . . 567-569	-	-	...	...	-	-	-	-	-	-	
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	-	(1)	...	...	-	-	-	-	-	(1)	
Painters, construction and maintenance . . . . . 579	-	-	...	...	-	-	-	-	-	-	
Other construction trades . . . . . 553-566, 573, 583-599	-	-	...	...	-	-	-	-	-	-	
Extractive occupations . . . . . 613-617	-	-	...	...	-	-	-	-	-	-	
Precision production occupations . . . . . 633-699	A 198	119	...	...	99	101	86	207	122	176	
Supervisors, production occupations . . . . . 633	-	71	...	...	-	92	-	(1)	48	180	
Precision metal and woodworking occupations . . . . . 634-659	(1)	A 263	...	...	-	-	140	-	61	A 463	
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	B 343	85	...	...	119	168	113	(1)	146	111	
Precision food production occupations . . . . . 686-688	(1)	103	...	...	(1)	(1)	-	-	-	(1)	
Other precision production occupations . . . . . 675-684, 689-699	(1)	113	...	...	(1)	-	130	-	270	(1)	

Machine operators, assemblers, and inspectors . . . . .	703-799	130	96	...	...	107	111	A 132	65	93	91
Machine operators and tenders, except precision . . . . .	703-779	110	100	...	...	98	111	A 134	53	85	94
Metal, plastic, and woodworking machine operators . . . . .	703-733	328	84	...	...	-	-	-	-	-	-
Printing machine operators . . . . .	734-737	-	62	...	...	-	-	-	-	220	( <sup>1</sup> )
Textile, apparel, and furnishing machine operators . . . . .	738-749	70	115	...	...	93	110	118	74	88	99
Machine operators, assorted materials . . . . .	753-779	A 242	57	...	...	140	138	B 213	-	75	78
Fabricators, assemblers, and hand working occupations . . . . .	783-795	79	79	...	...	211	72	92	( <sup>1</sup> )	154	-
Production inspectors, testers, samplers, and weighers . . . . .	796-799	B 366	79	...	...	102	149	166	-	101	152
Transportation and material moving occupations . . . . .	803-859	-	95	...	...	-	( <sup>1</sup> )	64	-	-	-
Motor vehicle operators . . . . .	803-814	-	121	...	...	-	( <sup>1</sup> )	81	-	-	-
Other transportation occupations . . . . .	823-859	-	-	...	...	-	-	-	-	-	-
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	131	104	...	...	55	172	105	-	76	39
Construction laborers . . . . .	869	( <sup>1</sup> )	-	...	...	-	-	-	-	-	-
Laborers, except construction . . . . .	889	118	100	...	...	50	178	120	-	74	35
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	117	121	...	...	72	162	72	-	85	52
Military . . . . .	905	( <sup>1</sup> )	95	...	...	-	-	-	-	( <sup>1</sup> )	-
Homemaker . . . . .	914	B 83	B 90	...	...	97	103	B 89	90	98	95
Occupation not reported . . . . .	913, 915-999	145	78	...	...	145	50	B 43	122	72	72

**Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	Leukemia (204-208)	All other cancers (152... 193-199)	Diabetes mellitus (250)	Aplastic anemia (284)	Diseases of heart (390-398, 402, 404-429)	Hypertensive heart disease (402)	Hypertensive heart, renal disease (404)	Ischemic heart disease (410-414)	Acute myocardial infarction (410)	All other ischemic heart disease (411-414)	Number of deaths	
All occupations . . . . .	1,018	3,161	2,941	100	49,887	1,572	253	33,609	17,236	16,373		
											Proportionate mortality ratios	
Executive, administrative, and managerial occupations . . . . . 003-037	92	97	B 68	215	B 91	95	105	A 94	93	95		
Executive and administrative occupations . . . . . 003-019	88	91	A 72	137	B 93	83	129	96	97	96		
Management related occupations . . . . . 023-037	105	119	A 54	A 503	B 82	141	-	A 85	A 81	89		
Professional specialty occupations . . . . . 043-199	A 128	98	B 78	139	B 94	85	73	B 93	B 88	98		
Architects, engineers, and scientists . . . . . 043-083	-	233	53	-	81	( <sup>1</sup> )	-	90	54	137		
Health diagnosis and treatment occupations . . . . . 084-106	114	87	78	181	97	120	27	98	91	105		
Teachers . . . . . 113-163	B 141	96	A 81	138	B 93	77	105	B 91	B 88	95		
Other professional specialty occupations . . . . . 164-199	111	111	70	91	95	64	-	93	A 85	101		
Technicians and related support . . . . . 203-235	99	107	90	( <sup>1</sup> )	98	100	51	99	103	95		
Sales occupations . . . . . 243-285	106	106	B 67	148	97	93	126	97	99	94		
Administrative support occupations, including clerical . . . . . 303-389	119	B 122	B 58	70	B 93	113	77	B 94	B 89	99		
Secretaries, stenographers, and typists . . . . . 313-315	115	118	B 47	37	B 92	102	21	B 90	B 84	97		
Records processing occupations . . . . . 325-344	135	A 134	B 61	67	95	105	106	95	96	94		
Mail and message distributing occupations . . . . . 354-357	135	45	49	-	90	93	-	105	114	94		
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	114	A 123	B 67	107	B 93	128	118	96	B 88	105		
Service occupations . . . . . 403-469	94	98	94	96	102	A 112	88	102	102	101		
Private household occupations . . . . . 403-407	A 60	108	96	81	A 104	112	93	101	A 108	93		
Protective service occupations . . . . . 413-427	180	31	72	-	111	273	-	128	143	108		
Food preparation and service occupations . . . . . 433-444	96	93	95	41	102	A 131	56	102	100	104		
Health service occupations . . . . . 445-447	123	78	121	73	105	109	143	107	106	109		
Cleaning and building service occupations . . . . . 448-455	107	100	A 64	235	104	98	79	106	92	B 123		
Personal service occupations . . . . . 456-469	106	113	82	185	B 87	72	81	A 90	91	89		
Farming, forestry, fishing occupations . . . . . 473-499	83	115	109	-	99	86	236	95	97	93		
Farm and other agricultural occupations . . . . . 473-489	83	116	109	-	99	86	236	96	98	93		
Forestry, fishing, and hunting occupations . . . . . 494-499	-	-	-	-	52	-	-	-	-	-		
Precision production, craft and repair occupations . . . . . 503-699	98	103	95	74	95	139	64	94	91	97		
Mechanics and repairers . . . . . 503-549	-	166	112	-	89	174	-	84	60	118		
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	-	-	-	-	136	-	-	194	172	223		
Other mechanics and repairers . . . . . 503, 518-549	-	192	130	-	81	201	-	A 64	A 39	97		
Construction trades . . . . . 553-599	283	54	60	-	80	( <sup>1</sup> )	-	64	70	57		
Carpenters and apprentices . . . . . 567-569	( <sup>1</sup> )	-	-	-	116	-	-	101	148	52		
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	( <sup>1</sup> )	-	-	-	100	-	-	71	62	84		
Painters, construction and maintenance . . . . . 579	-	-	-	-	66	-	-	38	-	85		
Other construction trades . . . . . 553-566, 573, 583-599	-	( <sup>1</sup> )	( <sup>1</sup> )	-	60	( <sup>1</sup> )	-	59	88	30		
Extractive occupations . . . . . 613-617	-	( <sup>1</sup> )	-	-	138	-	-	51	50	52		
Precision production occupations . . . . . 633-699	97	99	97	84	96	139	71	97	95	99		
Supervisors, production occupations . . . . . 633	44	104	143	( <sup>1</sup> )	98	127	-	99	83	120		
Precision metal and woodworking occupations . . . . . 634-659	59	77	24	-	98	116	-	106	88	134		
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	113	107	106	-	94	126	57	96	107	86		
Precision food production occupations . . . . . 686-688	163	131	135	-	86	159	-	84	A 48	125		
Other precision production occupations . . . . . 675-684, 689-699	104	70	43	-	105	221	( <sup>1</sup> )	98	101	93		

Machine operators, assemblers, and inspectors . . . . .	703-799	97	113	99	92	103	105	80	A 104	A 106	102
Machine operators and tenders, except precision . . . . .	703-779	100	115	100	109	103	108	93	104	105	103
Metal, plastic, and woodworking machine operators . . . . .	703-733	-	76	29	-	B 132	66	-	A 138	A 146	126
Printing machine operators . . . . .	734-737	( <sup>1</sup> )	244	121	-	84	189	-	98	108	86
Textile, apparel, and furnishing machine operators . . . . .	738-749	88	112	101	140	A 104	115	116	105	106	103
Machine operators, assorted materials . . . . .	753-779	157	121	100	-	96	79	-	97	94	101
Fabricators, assemblers, and hand working occupations . . . . .	783-795	108	102	99	-	107	129	-	113	108	118
Production inspectors, testers, samplers, and weighers . . . . .	796-799	59	102	88	-	94	34	-	103	A 121	79
Transportation and material moving occupations . . . . .	803-859	115	123	103	-	94	116	-	91	95	85
Motor vehicle operators . . . . .	803-814	77	163	142	-	84	-	-	91	97	83
Other transportation occupations . . . . .	823-859	( <sup>1</sup> )	-	-	-	112	378	-	90	92	89
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	122	111	91	-	98	117	107	98	93	104
Construction laborers . . . . .	869	-	334	-	-	64	-	-	84	70	97
Laborers, except construction . . . . .	889	141	106	106	-	95	116	47	95	90	101
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	77	113	49	-	108	127	327	107	104	111
Military . . . . .	905	( <sup>1</sup> )	55	123	-	A 64	275	-	56	B 12	116
Homemaker . . . . .	914	96	A 97	B 113	97	B 102	97	105	B 102	B 103	101
Occupation not reported . . . . .	913, 915-999	74	B 70	121	67	101	96	113	94	95	93

**Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Occupation	All other diseases of heart (390-398, 415-429)	Hypertension with or without renal disease (401, 403)	Cerebro-vascular diseases (430-438)	Atherosclerosis (440)	Pneumonia and influenza (480-487)	Chronic obstructive pulmonary diseases (490-496)	Pneumo-conioses and pneumopathy (500-505)	Ulcer of stomach and duodenum (531-533)	Chronic liver disease and cirrhosis (571)	Nephritis and nephrosis (580-589)
Number of deaths										
All occupations . . . . .	14,453	613	13,639	2,231	4,085	3,486	6	464	1,159	1,480
Proportionate mortality ratios										
Executive, administrative, and managerial occupations . . . . . 003-037	B 82	52	A 90	89	A 81	92	-	76	98	98
Executive and administrative occupations . . . . . 003-019	B 85	65	A 87	90	A 76	98	-	68	112	100
Management related occupations . . . . . 023-037	B 72	-	98	86	101	73	-	109	61	89
Professional specialty occupations . . . . . 043-199	98	88	99	91	104	91	-	128	A 79	B 74
Architects, engineers, and scientists . . . . . 043-083	54	-	61	-	52	171	-	-	85	( <sup>1</sup> )
Health diagnosis and treatment occupations . . . . . 084-106	96	115	106	80	98	A 128	-	117	100	99
Teachers . . . . . 113-163	97	92	99	90	107	B 74	-	B 165	71	B 66
Other professional specialty occupations . . . . . 164-199	105	32	92	115	98	87	-	A -	64	66
Technicians and related support . . . . . 203-235	96	132	88	110	106	A 137	-	48	83	90
Sales occupations . . . . . 243-285	96	120	96	96	A 80	111	-	131	90	80
Administrative support occupations, including clerical . . . . . 303-389	B 91	112	96	104	103	99	-	85	90	87
Secretaries, stenographers, and typists . . . . . 313-315	97	98	A 89	96	109	103	-	75	110	81
Records processing occupations . . . . . 325-344	95	80	93	107	102	106	-	87	106	101
Mail and message distributing occupations . . . . . 354-357	A 57	( <sup>1</sup> )	90	104	37	41	-	-	-	155
Other administrative support occupations . . . . . 303-309, 316-323, 345-353, 359-389	B 85	141	105	111	100	96	-	98	A 67	82
Service occupations . . . . . 403-469	101	102	99	104	97	103	-	95	99	102
Private household occupations . . . . . 403-407	B 110	101	99	104	93	83	-	96	98	107
Protective service occupations . . . . . 413-427	55	( <sup>1</sup> )	62	-	152	65	-	-	53	-
Food preparation and service occupations . . . . . 433-444	99	98	98	101	103	112	-	88	114	104
Health service occupations . . . . . 445-447	98	70	104	105	94	105	-	53	75	102
Cleaning and building service occupations . . . . . 448-455	101	120	100	73	108	134	-	115	82	81
Personal service occupations . . . . . 456-469	A 83	132	101	140	85	99	-	148	128	103
Farming, forestry, fishing occupations . . . . . 473-499	106	89	103	111	96	121	-	113	106	123
Farm and other agricultural occupations . . . . . 473-489	106	89	102	111	96	122	-	113	107	123
Forestry, fishing, and hunting occupations . . . . . 494-499	( <sup>1</sup> )	-	360	-	-	-	( <sup>1</sup> )	-	-	-
Precision production, craft and repair occupations . . . . . 503-699	93	52	102	91	107	93	-	32	106	95
Mechanics and repairers . . . . . 503-549	94	-	92	-	232	86	-	-	227	179
Vehicle and mobile equipment mechanics and repairers . . . . . 505-517	-	-	67	-	( <sup>1</sup> )	-	-	-	( <sup>1</sup> )	-
Other mechanics and repairers . . . . . 503, 518-549	110	-	97	-	229	101	-	-	168	208
Construction trades . . . . . 553-599	114	-	109	270	92	228	-	-	-	-
Carpenters and apprentices . . . . . 567-569	163	-	60	-	( <sup>1</sup> )	-	-	-	-	-
Electricians, apprentices, and electrical power installers and repairers . . . . . 575-577	188	-	200	-	-	-	-	-	-	-
Painters, construction and maintenance . . . . . 579	142	-	-	( <sup>1</sup> )	-	438	-	-	-	-
Other construction trades . . . . . 553-566, 573, 583-599	35	-	184	431	( <sup>1</sup> )	288	-	-	-	-
Extractive occupations . . . . . 613-617	A 359	-	125	-	-	-	-	-	-	-
Precision production occupations . . . . . 633-699	89	58	102	88	102	87	-	36	102	95
Supervisors, production occupations . . . . . 633	93	214	93	-	107	106	-	-	30	-
Precision metal and woodworking occupations . . . . . 634-659	77	-	68	-	145	49	-	-	73	117
Precision textile, apparel, and furnishings machine workers . . . . . 666-674	86	52	105	108	98	86	-	68	179	110
Precision food production occupations . . . . . 686-688	95	-	141	168	66	69	-	-	141	226
Other precision production occupations . . . . . 675-684, 689-699	107	-	85	-	129	116	-	-	72	-

Machine operators, assemblers, and inspectors . . . . .	703-799	99	120	95	111	A 84	100	B 934	66	96	117
Machine operators and tenders, except precision . . . . .	703-779	101	133	95	114	A 85	100	B 1,191	69	100	123
Metal, plastic, and woodworking machine operators . . . . .	703-733	127	( <sup>1</sup> )	83	69	31	201	-	421	53	-
Printing machine operators . . . . .	734-737	A 38	459	A 40	150	72	174	-	-	170	94
Textile, apparel, and furnishing machine operators . . . . .	738-749	102	131	96	104	A 83	91	B 1,685	63	110	B 140
Machine operators, assorted materials . . . . .	753-779	99	106	97	A 172	101	114	-	55	71	69
Fabricators, assemblers, and hand working occupations . . . . .	783-795	92	-	B 64	71	85	126	-	105	83	119
Production inspectors, testers, samplers, and weighers . . . . .	796-799	79	85	A 128	107	79	74	-	-	74	52
Transportation and material moving occupations . . . . .	803-859	97	( <sup>1</sup> )	101	86	155	65	-	-	114	-
Motor vehicle operators . . . . .	803-814	82	( <sup>1</sup> )	115	-	199	58	-	-	140	-
Other transportation occupations . . . . .	823-859	131	-	73	( <sup>1</sup> )	83	82	-	-	-	-
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	94	64	100	98	102	110	-	129	82	78
Construction laborers . . . . .	869	33	-	72	-	( <sup>1</sup> )	-	-	-	-	-
Laborers, except construction . . . . .	889	93	67	104	101	110	118	-	101	60	69
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	105	56	89	101	76	92	-	213	146	113
Military . . . . .	905	60	-	90	-	-	96	-	-	189	280
Homemaker . . . . .	914	B 102	101	B 102	99	101	100	65	101	B 108	103
Occupation not reported . . . . .	913, 915-999	B 117	94	98	A 133	B 149	87	-	158	92	121

**Table 2. Deaths for 46 selected occupations and from 52 selected causes of death, and proportionate mortality ratios for 46 selected occupations by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after occupations are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes.]

Occupation	Accidents and adverse effects (E800–E949)	Motor vehicle accidents (E810–E825)	Accidents mainly of industrial type (E846 . . . E923–E926)	Other accidents (E800–E807 . . . E927–E949)	Suicide (E950–E959)	Homicide and legal intervention (E960–E978)	All other causes (Residual)
Number of deaths							
All occupations . . . . .	3,442	1,469	34	1,939	865	515	15,306
Proportionate mortality ratios							
Executive, administrative, and managerial occupations . . . . . 003–037	A 120	A 130	88	111	83	140	103
Executive and administrative occupations . . . . . 003–019	A 124	B 139	( <sup>1</sup> )	111	89	145	99
Management related occupations . . . . . 023–037	108	106	–	113	67	129	A 121
Professional specialty occupations . . . . . 043–199	B 120	B 127	127	115	B 137	107	97
Architects, engineers, and scientists . . . . . 043–083	109	95	( <sup>1</sup> )	91	B 330	173	47
Health diagnosis and treatment occupations . . . . . 084–106	105	98	–	114	119	126	92
Teachers . . . . . 113–163	B 133	B 148	77	A 125	124	116	100
Other professional specialty occupations . . . . . 164–199	107	128	( <sup>1</sup> )	83	A 152	47	98
Technicians and related support . . . . . 203–235	117	A 136	–	95	133	87	86
Sales occupations . . . . . 243–285	107	A 125	217	88	94	125	99
Administrative support occupations, including clerical . . . . . 303–389	103	110	37	96	111	95	95
Secretaries, stenographers, and typists . . . . . 313–315	111	115	–	108	109	100	99
Records processing occupations . . . . . 325–344	100	91	–	110	100	109	92
Mail and message distributing occupations . . . . . 354–357	A 200	B 359	–	68	173	247	110
Other administrative support occupations . . . . . 303–309, 316–323, 345–353, 359–389	92	104	89	79	115	79	92
Service occupations . . . . . 403–469	106	112	73	100	100	B 129	98
Private household occupations . . . . . 403–407	99	88	–	106	96	116	103
Protective service occupations . . . . . 413–427	B 199	A 279	–	89	50	88	86
Food preparation and service occupations . . . . . 433–444	111	106	184	116	92	A 145	94
Health service occupations . . . . . 445–447	113	124	–	101	110	114	92
Cleaning and building service occupations . . . . . 448–455	91	126	–	61	56	128	86
Personal service occupations . . . . . 456–469	9F	104	( <sup>1</sup> )	81	142	138	110
Farming, forestry, fishing occupations . . . . . 473–499	92	139	–	71	118	121	101
Farm and other agricultural occupations . . . . . 473–489	93	139	–	71	119	121	100
Forestry, fishing, and hunting occupations . . . . . 494–499	–	–	–	–	–	–	356
Precision production, craft and repair occupations . . . . . 503–699	117	114	( <sup>1</sup> )	117	104	142	89
Mechanics and repairers . . . . . 503–549	31	–	–	60	188	274	80
Vehicle and mobile equipment mechanics and repairers . . . . . 505–517	–	–	–	–	–	–	119
Other mechanics and repairers . . . . . 503, 518–549	34	–	–	67	196	278	74
Construction trades . . . . . 553–599	140	96	( <sup>1</sup> )	137	249	( <sup>1</sup> )	53
Carpenters and apprentices . . . . . 567–569	167	( <sup>1</sup> )	–	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	–
Electricians, apprentices, and electrical power installers and repairers . . . . . 575–577	( <sup>1</sup> )	–	( <sup>1</sup> )	–	–	–	77
Painters, construction and maintenance . . . . . 579	173	( <sup>1</sup> )	–	( <sup>1</sup> )	( <sup>1</sup> )	–	77
Other construction trades . . . . . 553–566, 573, 583–599	–	–	–	–	( <sup>1</sup> )	–	65
Extractive occupations . . . . . 613–617	–	–	–	–	–	–	112
Precision production occupations . . . . . 633–699	122	126	–	122	81	127	91
Supervisors, production occupations . . . . . 633	116	88	–	150	59	227	80
Precision metal and woodworking occupations . . . . . 634–659	135	104	–	182	141	74	81
Precision textile, apparel, and furnishings machine workers . . . . . 666–674	128	183	–	111	46	170	97
Precision food production occupations . . . . . 686–688	117	214	–	42	–	–	71
Other precision production occupations . . . . . 675–684, 689–699	108	91	–	129	130	133	104

Machine operators, assemblers, and inspectors . . . . .	703-799	99	117	107	82	B 66	114	96
Machine operators and tenders, except precision . . . . .	703-779	104	A 123	131	89	B 61	131	A 93
Metal, plastic, and woodworking machine operators . . . . .	703-733	66	44	( <sup>1</sup> )	45	58	-	74
Printing machine operators . . . . .	734-737	-	-	-	-	218	( <sup>1</sup> )	91
Textile, apparel, and furnishing machine operators . . . . .	738-749	110	A 133	91	94	A 55	117	94
Machine operators, assorted materials . . . . .	753-779	100	117	-	83	63	A 170	90
Fabricators, assemblers, and hand working occupations . . . . .	783-795	87	116	-	54	97	51	98
Production inspectors, testers, samplers, and weighers . . . . .	796-799	55	62	-	51	72	-	122
Transportation and material moving occupations . . . . .	803-859	132	121	B 2,580	102	116	123	A 60
Motor vehicle operators . . . . .	803-814	133	114	( <sup>1</sup> )	137	61	117	58
Other transportation occupations . . . . .	823-859	125	147	( <sup>1</sup> )	-	299	( <sup>1</sup> )	67
Handlers, equipment cleaners, helpers, and laborers . . . . .	863-889	B 132	B 148	371	109	120	151	101
Construction laborers . . . . .	869	237	231	( <sup>1</sup> )	( <sup>1</sup> )	-	456	132
Laborers, except construction . . . . .	889	124	130	( <sup>1</sup> )	117	125	106	111
Other handlers, cleaners, and laborers . . . . .	863-867, 873-888	134	A 175	-	87	126	231	A 68
Military . . . . .	905	A 175	157	-	223	71	159	84
Homemaker . . . . .	914	B 93	B 81	81	99	96	B 78	100
Occupation not reported . . . . .	913, 915-999	B 84	B 71	159	110	92	A 76	B 138

<sup>1</sup>Proportionate mortality ratio not computed since observed deaths equaled 1 and expected deaths were less than 1.0.

A-Proportionate mortality ratio is significantly different from 100 at the 0.05 level of significance; see Technical notes.

B-Proportionate mortality ratio is significantly different from 100 at the 0.01 level of significance; see Technical notes.

**Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes.]

Industry	Number of deaths	Tuberculosis (010-018, 137)	Septicemia (038)	All cancers (140-208)	Cancer of oral cavity (140-149)	Cancer of esophagus (150)	Cancer of stomach (151)	Cancer of colon (153)	Cancer of rectum (154)	Cancer of liver (155)	
Number of deaths											
All industries . . . . .	140,715	123	864	32,089	770	843	1,044	3,028	563	428	
Proportionate mortality ratios											
Agriculture, forestry, and fisheries . . . . .	010-031	21,935	104	96	B 89	B 63	A 79	A 85	B 86	82	77
Mining . . . . .	040-050	2,554	220	111	95	63	98	78	B 57	67	95
Construction . . . . .	060	16,202	A 149	100	A 103	115	B 130	98	B 86	A 127	103
Manufacturing . . . . .	100-392	32,014	72	93	B 103	99	95	B 118	B 110	108	91
Nondurable goods . . . . .	100-222	14,039	98	99	101	103	90	117	B 119	105	85
Food and kindred products . . . . .	100-130	3,900	28	121	102	93	127	121	B 135	96	82
Textile mill and finished products . . . . .	132-152	4,333	155	108	B 92	108	70	87	93	80	66
Paper and allied products . . . . .	160-162	1,524	318	67	106	106	66	B 184	A 143	78	128
Printing, publishing, and allied products . . . . .	171-172	1,438	-	61	104	92	152	117	106	A 201	71
Chemicals and allied products . . . . .	180-192	1,143	-	71	107	170	50	130	128	190	78
Petroleum and coal products . . . . .	200-201	248	-	-	110	-	-	108	A 195	-	-
Rubber, plastics, and leather products . . . . .	210-222	1,453	88	119	A 110	80	64	116	121	84	142
Durable goods . . . . .	230-392	17,975	A 52	87	B 105	96	99	A 119	104	111	95
Lumber and other wood products, and furniture . . . . .	230-242	2,842	64	83	99	82	78	110	91	76	105
Stone, clay, glass, and concrete products . . . . .	250-262	923	-	51	102	72	45	79	95	B 270	32
Primary metal industries . . . . .	270-280	2,030	-	143	101	102	80	130	101	86	150
Fabricated metal industries . . . . .	281-301	1,745	-	91	103	101	A 163	139	113	41	113
Machinery, except electrical . . . . .	310-332	3,223	124	A 50	B 111	80	110	119	94	111	124
Electrical machinery, equipment, and supplies . . . . .	340-350	1,430	-	106	107	97	82	114	132	49	68
Transportation equipment . . . . .	351-370	3,673	67	67	B 111	107	100	106	102	145	86
Miscellaneous manufacturing industries . . . . .	371-392	2,109	61	126	103	119	120	149	115	149	31
Transportation, communications, and other public utilities . . . . .	400-472	14,696	68	101	B 104	A 121	104	91	101	115	107
Transportation . . . . .	400-432	11,200	70	94	102	108	102	83	98	113	103
Railroads . . . . .	400	4,300	101	80	A 107	122	110	A 63	108	102	89
Trucking and warehousing . . . . .	410-411	3,305	36	97	100	96	94	B 46	79	141	128
Other transportation . . . . .	401-402, 412-432	3,595	62	112	98	108	101	A 139	102	99	96
Communications . . . . .	440-442	883	-	84	107	121	40	158	B 165	107	150
Utilities and sanitary services . . . . .	460-472	2,613	79	135	B 111	B 169	129	103	95	123	106
Wholesale trade . . . . .	500-571	4,557	54	99	A 106	107	85	95	116	69	80
Retail trade . . . . .	580-691	12,855	97	117	102	113	116	94	108	83	119
Food, bakery, and dairy stores . . . . .	601-611	2,403	160	92	100	84	72	96	A 72	74	117
Auto dealers and supply stores . . . . .	612-620	1,786	144	B 200	102	120	104	93	105	54	74
Eating and drinking places . . . . .	641	2,042	112	89	100	A 171	B 181	89	116	78	151
Other retail trade . . . . .	580-600, 621-640, 642-691	6,624	57	113	103	103	112	96	A 119	96	122
Finance, insurance, and real estate . . . . .	700-712	3,704	103	83	104	97	83	109	117	105	101
Business and repair services . . . . .	721-760	4,801	150	74	103	111	108	90	96	73	107
Automotive services and repair . . . . .	750-751	2,409	198	81	103	131	121	84	102	62	93
Other business and repair services . . . . .	721-742, 752-760	2,392	101	67	102	93	94	95	89	83	122
Personal services . . . . .	761-791	3,028	87	131	97	117	85	77	89	116	111
Private households . . . . .	761	554	293	A 196	A 82	106	91	18	67	176	139
Beauty and barber shops . . . . .	772-780	616	-	171	92	33	90	114	84	128	55
Other personal services . . . . .	762-771, 781-791	1,858	-	88	103	145	82	89	97	97	117
Entertainment and recreation services . . . . .	800-802	1,097	-	92	102	148	105	62	74	93	A 238

Professional and related services . . . . .	812-892	8,594	115	102	101	84	86	110	B 122	117	103
Health services . . . . .	812-840	2,161	50	83	106	111	93	121	95	148	73
Educational services . . . . .	842-860	3,464	93	97	102	68	95	98	B 129	99	62
Social services . . . . .	861-881	1,675	242	126	A 89	44	77	145	A 138	76	172
Legal, engineering, and other services . . . . .	841, 882-892	1,294	( <sup>1</sup> )	113	103	133	58	77	127	168	186
Public administration . . . . .	900-932	6,060	56	88	100	97	113	97	87	109	112
Military . . . . .	942	2,696	134	99	A 107	96	94	B 160	113	50	156
Industry not reported . . . . .	951-990	5,922	160	A 136	B 85	110	98	86	94	87	96

**Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes.]

Industry	Cancer of gall-bladder (156)	Cancer of pancreas (157)	Cancer of larynx (161)	Cancer of trachea, bronchus, lung (162)	Cancer of pleura (163)	Cancer of bone (170)	Cancer of connective tissue (171)	Malignant melanoma of skin (172)	Cancer of female breast (174)	Cancer of cervix uteri (180)	Number of deaths	
All industries	183	1,443	377	11,314	35	62	176	424	...	...		
											Proportionate mortality ratios	
Agriculture, forestry, and fisheries	010-031	111	96	B 61	B 81	A 19	A 35	102	A 65	...	...	...
Mining	040-050	86	88	92	113	-	170	31	61	...	...	...
Construction	060	88	91	118	B 114	178	90	B 49	89	...	...	...
Manufacturing	100-392	92	98	105	B 107	B 180	137	103	95	...	...	...
Nondurable goods	100-222	91	107	96	101	110	84	84	87	...	...	...
Food and kindred products	100-130	118	114	111	94	-	119	66	67	...	...	...
Textile mill and finished products	132-152	105	76	83	100	273	55	39	59	...	...	...
Paper and allied products	160-162	-	122	118	94	(1)	(1)	107	105	...	...	...
Printing, publishing, and allied products	171-172	102	113	52	95	-	(1)	172	183	...	...	...
Chemicals and allied products	180-192	68	A 159	115	103	-	-	195	104	...	...	...
Petroleum and coal products	200-201	-	112	(1)	118	-	-	(1)	-	...	...	...
Rubber, plastics, and leather products	210-222	102	113	81	B 130	-	-	-	96	...	...	...
Durable goods	230-392	93	92	111	B 112	A 234	A 177	116	100	...	...	...
Lumber and other wood products, and furniture	230-242	88	107	49	A 115	-	70	112	41	...	...	...
Stone, clay, glass, and concrete products	250-262	85	100	37	A 124	(1)	-	253	36	...	...	...
Primary metal industries	270-280	114	105	A 189	104	405	345	84	88	...	...	...
Fabricated metal industries	281-301	86	85	121	110	-	(1)	88	51	...	...	...
Machinery, except electrical	310-332	68	101	B 218	B 115	220	75	122	113	...	...	...
Electrical machinery, equipment, and supplies	340-350	52	90	73	106	-	(1)	95	138	...	...	...
Transportation equipment	351-370	99	91	64	B 115	B 579	131	127	A 167	...	...	...
Miscellaneous manufacturing industries	371-392	143	A 50	102	102	-	B 532	106	68	...	...	...
Transportation, communications, and other public utilities	400-472	139	112	105	104	107	48	135	83	...	...	...
Transportation	400-432	128	109	94	105	106	65	129	72	...	...	...
Railroads	400	105	124	121	A 113	198	181	149	66	...	...	...
Trucking and warehousing	410-411	207	106	116	B 114	-	-	123	61	...	...	...
Other transportation	401-402, 412-432	84	95	47	A 87	(1)	-	116	92	...	...	...
Communications	440-442	-	119	164	84	-	-	322	117	...	...	...
Utilities and sanitary services	460-472	A 238	125	130	107	(1)	-	92	113	...	...	...
Wholesale trade	500-571	82	117	119	106	250	102	A 17	130	...	...	...
Retail trade	580-691	77	112	125	100	-	155	78	122	...	...	...
Food, bakery, and dairy stores	601-611	95	122	120	111	-	287	103	88	...	...	...
Auto dealers and supply stores	612-620	84	101	60	103	-	A 491	81	141	...	...	...
Eating and drinking places	641	40	106	172	88	-	-	97	59	...	...	...
Other retail trade	580-600, 621-640, 642-691	79	112	131	99	-	70	61	A 148	...	...	...
Finance, insurance, and real estate	700-712	161	130	103	90	-	-	178	A 168	...	...	...
Business and repair services	721-760	98	81	133	A 110	-	-	111	82	...	...	...
Automotive services and repair	750-751	97	73	164	111	-	-	28	A 33	...	...	...
Other business and repair services	721-742, 752-760	98	89	103	110	-	-	191	130	...	...	...
Personal services	761-791	163	92	85	101	-	-	111	94	...	...	...
Private households	761	383	109	121	80	-	-	-	(1)	...	...	...
Beauty and barber shops	772-780	(1)	103	69	90	-	-	-	129	...	...	...
Other personal services	762-771, 781-791	128	84	78	111	-	-	173	79	...	...	...

Entertainment and recreation services . . . . .	800-802	142	153	34	106	-	349	125	105	...	...
Professional and related services . . . . .	812-892	89	A 122	66	B 79	47	216	B 189	B 196	...	...
Health services . . . . .	812-840	71	128	65	90	-	203	179	A 176	...	...
Educational services . . . . .	842-860	134	121	89	B 82	(1)	279	190	B 247	...	...
Social services . . . . .	861-881	46	140	68	B 58	-	(1)	107	135	...	...
Legal, engineering, and other services . . . . .	841, 882-892	57	91	-	A 79	-	(1)	297	169	...	...
Public administration . . . . .	900-932	111	90	122	98	61	122	134	114	...	...
Military . . . . .	942	-	A 65	130	100	(1)	86	69	106	...	...
Industry not reported . . . . .	951-990	76	A 69	59	B 88	177	82	87	A 55	...	...

**Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Cancer of body of uterus (182)	Cancer of ovary (183)	Cancer of prostate (185)	Cancer of testis (186)	Cancer of bladder (188)	Cancer of kidney, urinary organs (189)	Cancer of brain, nervous system (191-192)	Hodgkin's disease (201)	Other malignant lymphoma (200, 202)	Multiple myeloma, immuno-proliferative neoplasms (203)
Number of deaths										
All industries	...	...	3,453	47	803	767	714	153	929	511
Proportionate mortality ratios										
Agriculture, forestry, and fisheries	010-031	...	103	56	A 85	A 79	106	131	112	98
Mining	040-050	...	88	-	79	A 166	68	34	A 52	123
Construction	060	...	101	124	A 79	99	86	B 33	B 75	100
Manufacturing	100-392	...	100	134	105	98	98	120	92	104
Nondurable goods	100-222	...	99	163	89	95	103	124	95	94
Food and kindred products	100-130	...	90	(1)	104	127	95	132	78	89
Textile mill and finished products	132-152	...	87	96	82	71	107	197	98	105
Paper and allied products	160-162	...	A 139	488	100	125	86	65	85	139
Printing, publishing, and allied products	171-172	...	105	(1)	81	73	108	71	143	58
Chemicals and allied products	180-192	...	107	(1)	64	119	61	-	64	45
Petroleum and coal products	200-201	...	75	-	128	73	336	-	180	-
Rubber, plastics, and leather products	210-222	...	109	-	79	50	126	145	102	116
Durable goods	230-392	...	100	116	117	101	94	118	90	111
Lumber and other wood products, and furniture	230-242	...	98	-	105	102	74	93	87	67
Stone, clay, glass, and concrete products	250-262	...	85	(1)	138	39	101	94	49	56
Primary metal industries	270-280	...	89	(1)	102	81	49	100	83	102
Fabricated metal industries	281-301	...	105	(1)	80	98	121	105	65	92
Machinery, except electrical	310-332	...	98	198	111	92	85	145	115	A 169
Electrical machinery, equipment, and supplies	340-350	...	101	-	117	139	156	149	115	.95
Transportation equipment	351-370	...	110	188	137	124	90	123	88	120
Miscellaneous manufacturing industries	371-392	...	104	-	144	91	101	116	89	131
Transportation, communications, and other public utilities	400-472	...	101	51	113	102	102	95	115	87
Transportation	400-432	...	102	35	103	104	85	74	112	88
Railroads	400	...	100	-	108	84	130	35	104	83
Trucking and warehousing	410-411	...	79	-	104	A 143	B 43	45	113	116
Other transportation	401-402, 412-432	...	A 121	(1)	96	87	95	141	120	65
Communications	440-442	...	97	(1)	167	115	77	85	96	95
Utilities and sanitary services	460-472	...	98	-	138	88	B 182	181	133	81
Wholesale trade	500-571	...	103	65	133	101	114	139	108	138
Retail trade	580-691	...	92	100	102	102	114	94	106	112
Food, bakery, and dairy stores	601-611	...	92	(1)	91	95	131	163	121	133
Auto dealers and supply stores	612-620	...	92	(1)	81	117	136	87	88	108
Eating and drinking places	641	...	101	82	134	112	73	66	89	142
Other retail trade	580-600, 621-640, 642-691	...	89	91	103	98	114	85	112	96
Finance, insurance, and real estate	700-712	...	109	-	101	129	94	192	131	120
Business and repair services	721-760	...	111	156	101	117	108	86	87	A 52
Automotive services and repair	750-751	...	108	155	121	67	98	114	131	70
Other business and repair services	721-742, 752-760	...	114	157	82	A 167	118	58	A 42	35
Personal services	761-791	...	87	-	90	97	52	65	88	87
Private households	761	...	68	-	40	40	-	-	75	85
Beauty and barber shops	772-780	...	69	-	134	32	116	-	79	93
Other personal services	762-771, 781-791	...	100	-	86	132	45	99	94	86

Entertainment and recreation services. . . . .	800-802	...	...	76	( <sup>1</sup> )	120	118	50	244	81	52
Professional and related services. . . . .	812-892	...	...	111	164	112	113	A 131	89	B 146	105
Health services . . . . .	812-840	...	...	116	( <sup>1</sup> )	149	100	105	158	B 173	124
Educational services . . . . .	842-860	...	...	106	356	136	122	133	30	139	105
Social services . . . . .	861-881	...	...	109	-	51	68	144	66	105	125
Legal, engineering, and other services . . . . .	841, 882-892	...	...	122	-	67	164	153	128	A 165	44
Public administration . . . . .	900-932	...	...	112	142	106	106	126	50	115	98
Military . . . . .	942	...	...	B 139	88	100	129	86	156	111	124
Industry not reported . . . . .	951-990	...	...	B 56	60	121	A 61	71	122	B 47	77

**Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984–Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes.]

Industry	Leukemia (204–208)	All other cancers (152... 193–199)	Diabetes mellitus (250)	Aplastic anemia (284)	Diseases of heart (390–398, 402, 404–429)							All other ischemic heart disease (411–414)
					Hypertensive heart disease (402)	Hypertensive heart, renal disease (404)	Ischemic heart disease (410–414)	Acute myocardial infarction (410)				
Number of deaths												
All industries . . . . .	1,179	2,843	1,930	63	53,414	1,065	165	39,510	23,959	15,551		
Proportionate mortality ratios												
Agriculture, forestry, and fisheries . . . . .	010–031 A 114	92	92	103	B 103	B 81	123	B 104	B 115	B 89		
Mining . . . . .	040–050 128	98	97	–	A 94	93	36	A 94	103	B 80		
Construction . . . . .	060 85	107	B 75	100	B 96	A 81	63	B 94	B 94	B 94		
Manufacturing . . . . .	100–392 96	97	103	63	100	107	84	101	A 98	B 107		
Nondurable goods . . . . .	100–222 92	96	101	93	100	113	80	101	98	B 106		
Food and kindred products . . . . .	100–130 95	114	108	55	100	86	63	103	B 90	B 123		
Textile mill and finished products . . . . .	132–152 80	88	93	101	A 104	97	78	103	A 108	96		
Paper and allied products . . . . .	160–162 92	69	116	–	102	138	124	103	109	94		
Printing, publishing, and allied products . . . . .	171–172 114	99	104	( <sup>1</sup> )	96	83	129	95	A 87	106		
Chemicals and allied products . . . . .	180–192 104	106	61	–	98	B 186	82	98	94	107		
Petroleum and coal products . . . . .	200–201 95	98	88	–	95	114	–	92	100	79		
Rubber, plastics, and leather products . . . . .	210–222 89	86	124	292	A 94	B 184	60	98	91	109		
Durable goods . . . . .	230–392 99	97	105	38	100	103	88	101	98	B 107		
Lumber and other wood products, and furniture . . . . .	230–242 79	94	87	–	96	98	53	A 94	101	B 83		
Stone, clay, glass, and concrete products . . . . .	250–262 52	112	60	–	100	60	183	98	103	90		
Primary metal industries . . . . .	270–280 108	90	111	–	97	137	79	98	94	104		
Fabricated metal industries . . . . .	281–301 101	76	A 140	–	104	124	–	105	96	B 120		
Machinery, except electrical . . . . .	310–332 108	115	121	–	102	108	156	A 105	98	B 117		
Electrical machinery, equipment, and supplies . . . . .	340–350 145	79	88	( <sup>1</sup> )	103	139	85	102	91	B 121		
Transportation equipment . . . . .	351–370 121	98	105	62	101	71	137	104	100	A 111		
Miscellaneous manufacturing industries . . . . .	371–392 A 50	103	108	( <sup>1</sup> )	98	109	–	100	96	107		
Transportation, communications, and other public utilities . . . . .	400–472 99	103	A 116	122	99	105	107	99	98	101		
Transportation . . . . .	400–432 95	102	A 117	139	100	103	101	100	99	100		
Railroads . . . . .	400 122	103	B 137	141	99	107	73	98	97	100		
Trucking and warehousing . . . . .	410–411 B 32	113	94	225	97	103	137	98	96	102		
Other transportation . . . . .	401–402, 412–432 124	92	115	64	103	97	120	102	104	100		
Communications . . . . .	440–442 170	87	A 157	–	101	86	–	103	102	106		
Utilities and sanitary services . . . . .	460–472 93	113	97	87	95	117	165	96	93	103		
Wholesale trade . . . . .	500–571 121	97	87	193	102	93	84	103	102	103		
Retail trade . . . . .	580–691 100	99	A 114	136	101	117	79	102	100	104		
Food, bakery, and dairy stores . . . . .	601–611 79	88	122	177	101	118	35	100	106	93		
Auto dealers and supply stores . . . . .	612–620 105	110	132	( <sup>1</sup> )	101	66	116	104	100	112		
Eating and drinking places . . . . .	641 64	95	B 165	( <sup>1</sup> )	101	126	–	101	92	A 114		
Other retail trade . . . . .	580–600, 621–640, 642–691 117	101	91	130	101	127	109	101	100	104		
Finance, insurance, and real estate . . . . .	700–712 105	101	110	59	102	124	142	102	94	B 114		
Business and repair services . . . . .	721–760 92	102	107	148	A 96	94	176	96	95	99		
Automotive services and repair . . . . .	750–751 68	113	75	195	B 93	73	264	94	95	93		
Other business and repair services . . . . .	721–742, 752–760 117	91	A 139	( <sup>1</sup> )	98	114	88	99	95	105		
Personal services . . . . .	761–791 111	118	100	75	96	92	66	95	97	92		
Private households . . . . .	761 75	135	A 33	–	97	94	–	96	107	80		
Beauty and barber shops . . . . .	772–780 98	154	47	–	103	64	225	100	101	99		
Other personal services . . . . .	762–771, 781–791 124	101	A 140	( <sup>1</sup> )	A 94	99	40	93	93	92		

Entertainment and recreation services . . . . .	800-802	140	95	99	407	98	96	256	94	A 86	106
Professional and related services . . . . .	812-892	110	94	99	104	B 103	A 128	133	A 104	101	B 110
Health services . . . . .	812-840	116	98	85	-	99	116	40	101	96	108
Educational services . . . . .	842-860	117	94	108	66	103	100	95	A 106	105	108
Social services . . . . .	861-881	88	80	123	401	B 115	147	A 281	B 113	110	A 117
Legal, engineering, and other services . . . . .	841, 882-892	107	103	68	-	98	B 222	153	93	B 84	107
Public administration . . . . .	900-932	92	95	115	76	A 103	103	93	104	99	B 112
Military . . . . .	942	108	124	78	-	95	99	108	A 93	92	95
Industry not reported . . . . .	951-990	A 67	116	103	131	97	92	99	B 91	B 92	B 89

**Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry		All other diseases of heart (390-398, 415-429)	Hypertension with or without renal disease (401, 403)	Cerebro-vascular diseases (430-438)	Atherosclerosis (440)	Pneumonia and influenza (480-487)	Chronic obstructive pulmonary diseases (490-496)	Pneumo-conioses and pneumopathy (500-505)	Ulcer of stomach and duodenum (531-533)	Chronic liver disease and cirrhosis (571)	Nephritis and nephrosis (580-589)	Number of deaths									
												Proportionate mortality ratios									
All industries		12,674	497	9,108	1,346	4,023	6,603	121	470	1,896	1,381										
Agriculture, forestry, and fisheries	010-031	A 104	102	B 112	107	100	B 91	B 43	A 79	B 77	109										
Mining	040-050	95	60	A 83	107	107	B 141	B 2,857	116	66	104										
Construction	060	102	109	99	86	100	B 119	A 45	106	A 112	100										
Manufacturing	100-392	B 96	103	102	103	98	99	A 65	92	103	101										
Nondurable goods	100-222	96	117	A 107	96	101	99	A 32	91	100	105										
Food and kindred products	100-130	92	105	92	105	99	99	58	76	94	A 135										
Textile mill and finished products	132-152	106	109	B 120	89	106	110	52	123	83	96										
Paper and allied products	160-162	94	116	97	106	115	99	-	119	90	114										
Printing, publishing, and allied products	171-172	101	189	100	85	98	98	-	101	143	59										
Chemicals and allied products	180-192	89	149	106	85	74	90	-	83	120	96										
Petroleum and coal products	200-201	106	228	A 148	119	162	B 15	-	-	140	81										
Rubber, plastics, and leather products	210-222	B 74	61	A 119	93	89	89	-	20	113	92										
Durable goods	230-392	96	92	99	109	95	99	91	93	105	98										
Lumber and other wood products, and furniture	230-242	103	88	110	A 147	98	105	43	106	77	104										
Stone, clay, glass, and concrete products	250-262	109	144	94	72	74	117	B 643	67	72	91										
Primary metal industries	270-280	92	52	105	94	104	112	169	89	104	113										
Fabricated metal industries	281-301	100	106	91	103	82	80	67	70	99	110										
Machinery, except electrical	310-332	90	96	95	95	97	88	35	122	122	90										
Electrical machinery, equipment, and supplies	340-350	103	A 232	99	129	103	101	86	44	124	78										
Transportation equipment	351-370	92	49	90	78	83	97	63	92	115	84										
Miscellaneous manufacturing industries	371-392	90	88	104	A 150	112	106	-	101	101	111										
Transportation, communications, and other public utilities	400-472	98	107	B 89	94	102	107	B 24	109	88	87										
Transportation	400-432	101	105	B 87	93	106	B 113	A 31	116	A 83	87										
Railroads	400	104	115	B 83	85	104	105	50	142	79	82										
Trucking and warehousing	410-411	93	150	102	83	111	B 131	-	98	92	90										
Other transportation	401-402, 412-432	103	54	B 80	111	107	107	32	99	77	93										
Communications	440-442	95	36	104	98	90	89	-	105	111	80										
Utilities and sanitary services	460-472	89	137	96	98	88	84	-	80	100	87										
Wholesale trade	500-571	99	105	95	116	A 81	95	50	85	91	76										
Retail trade	580-691	98	98	97	89	96	A 92	A 27	73	102	A 78										
Food, bakery, and dairy stores	601-611	101	122	100	113	100	85	94	61	71	134										
Auto dealers and supply stores	612-620	94	53	100	62	92	95	67	52	77	58										
Eating and drinking places	641	103	88	94	85	97	102	-	80	131	91										
Other retail trade	580-600, 621-640, 642-691	97	103	96	86	96	92	A -	80	110	B 58										
Finance, insurance, and real estate	700-712	102	71	94	89	84	A 84	31	141	109	89										
Business and repair services	721-760	92	91	96	96	103	B 119	-	113	118	97										
Automotive services and repair	750-751	89	129	100	119	107	A 123	-	79	124	116										
Other business and repair services	721-742, 752-760	95	52	92	74	99	116	-	148	112	78										
Personal services	761-791	102	80	97	A 146	118	100	40	153	92	112										
Private households	761	100	129	95	A 230	A 154	79	-	241	55	66										
Beauty and barber shops	772-780	112	85	92	94	133	70	(1)	92	116	172										
Other personal services	762-771, 781-791	99	56	100	145	102	115	-	150	96	109										

Entertainment and recreation services . . . . .	800-802	111	221	96	103	83	102	-	146	A 151	B 199
Professional and related services . . . . .	812-892	99	112	100	104	89	B 78	A 27	111	96	86
Health services . . . . .	812-840	93	105	93	87	107	89	-	141	95	73
Educational services . . . . .	842-860	92	94	104	113	85	B 80	33	103	105	88
Social services . . . . .	861-881	A 116	120	99	93	80	B 57	70	106	A 50	102
Legal, engineering, and other services . . . . .	841, 882-892	105	170	101	122	84	83	-	91	121	76
Public administration . . . . .	900-932	102	71	101	81	94	91	113	104	99	104
Military . . . . .	942	102	75	A 79	68	108	99	-	B 208	B 163	106
Industry not reported . . . . .	951-990	B 114	82	94	109	B 159	B 121	124	120	84	B 153

**Table 3. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for males 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Accidents and adverse effects (E800-E949)	Motor vehicle accidents (E810-E825)	Accidents mainly of industrial type (E846 . . . E923-E926)	Other accidents (E800-E807 . . . E927-E949)	Suicide (E950-E959)	Homicide and legal intervention (E960-E978)	All other causes (Residual)
Number of deaths							
All industries . . . . .	7,321	3,587	657	3,077	3,216	1,408	14,842
Proportionate mortality ratios							
Agriculture, forestry, and fisheries . . . . . 010-031	B 127	B 117	B 246	B 118	102	90	99
Mining . . . . . 040-050	B 144	113	B 419	119	98	98	B 80
Construction . . . . . 060	B 116	B 109	B 143	B 118	96	A 115	B 93
Manufacturing . . . . . 100-392	102	B 110	92	96	A 93	B 79	B 94
Nondurable goods . . . . . 100-222	99	A 113	B 67	92	95	B 74	97
Food and kindred products . . . . . 100-130	101	A 125	91	A 78	86	86	100
Textile mill and finished products . . . . . 132-152	93	101	A 53	92	98	81	94
Paper and allied products . . . . . 160-162	95	107	77	87	71	76	A 85
Printing, publishing, and allied products . . . . . 171-172	89	112	35	76	92	51	A 116
Chemicals and allied products . . . . . 180-192	B 130	124	102	A 143	103	60	91
Petroleum and coal products . . . . . 200-201	127	191	-	94	122	85	81
Rubber, plastics, and leather products . . . . . 210-222	93	98	35	101	125	42	99
Durable goods . . . . . 230-392	104	A 108	108	98	93	B 82	B 92
Lumber and other wood products, and furniture . . . . . 230-242	B 137	B 130	B 262	119	100	97	90
Stone, clay, glass, and concrete products . . . . . 250-262	111	116	175	90	104	120	100
Primary metal industries . . . . . 270-280	98	109	73	92	94	123	96
Fabricated metal industries . . . . . 281-301	99	94	94	107	84	68	100
Machinery, except electrical . . . . . 310-332	88	94	A 47	91	94	B 44	A 88
Electrical machinery, equipment, and supplies . . . . . 340-350	106	104	126	103	93	57	B 74
Transportation equipment . . . . . 351-370	93	113	A 47	82	83	A 60	97
Miscellaneous manufacturing industries . . . . . 371-392	98	98	72	104	97	92	90
Transportation, communications, and other public utilities . . . . . 400-472	96	110	88	B 84	106	110	99
Transportation . . . . . 400-432	97	A 115	A 66	A 87	111	113	98
Railroads . . . . . 400	90	A 66	94	105	A 128	102	96
Trucking and warehousing . . . . . 410-411	102	B 141	A 45	B 68	102	108	94
Other transportation . . . . . 401-402, 412-432	97	109	78	89	110	125	103
Communications . . . . . 440-442	91	87	101	93	87	66	97
Utilities and sanitary services . . . . . 460-472	94	100	A 165	A 72	94	117	106
Wholesale trade . . . . . 500-571	106	100	111	112	105	111	A 90
Retail trade . . . . . 580-691	B 89	99	B 40	A 87	98	112	A 106
Food, bakery, and dairy stores . . . . . 601-611	88	100	45	81	97	98	108
Auto dealers and supply stores . . . . . 612-620	90	98	A 39	91	104	112	101
Eating and drinking places . . . . . 641	94	100	B 14	105	94	122	93
Other retail trade . . . . . 580-600, 621-640, 642-691	B 86	98	B 50	A 80	98	109	B 110
Finance, insurance, and real estate . . . . . 700-712	95	80	94	110	117	99	98
Business and repair services . . . . . 721-760	A 90	97	87	A 80	111	A 127	101
Automotive services and repair . . . . . 750-751	95	103	99	83	105	B 142	100
Other business and repair services . . . . . 721-742, 752-760	A 85	91	75	78	117	112	102
Personal services . . . . . 761-791	87	A 76	53	106	A 129	124	107
Private households . . . . . 761	105	104	118	103	128	A 152	116
Beauty and barber shops . . . . . 772-780	A 53	58	-	58	117	81	A 124
Other personal services . . . . . 762-771, 781-791	89	A 70	46	120	A 132	115	98

Entertainment and recreation services . . . . .	800-802	A 81	80	56	89	124	87	94
Professional and related services . . . . .	812-892	93	96	B 49	100	102	A 74	105
Health services . . . . .	812-840	90	81	A 38	110	B 143	A 61	107
Educational services . . . . .	842-860	95	101	58	96	84	A 66	103
Social services . . . . .	861-881	100	115	86	90	B 45	108	101
Legal, engineering, and other services . . . . .	841, 882-892	89	91	A 16	104	128	94	111
Public administration . . . . .	900-932	B 80	95	B 37	B 75	93	83	104
Military . . . . .	942	93	100	B 11	105	99	B 59	108
Industry not reported . . . . .	951-990	B 73	B 64	B 36	97	99	A 116	B 143

<sup>1</sup>Proportionate mortality ratio not computed since observed deaths equaled 1 and expected deaths were less than 1.0.

A-Proportionate mortality ratio is significantly different from 100 at the 0.05 level of significance; see Technical notes.

B-Proportionate mortality ratio is significantly different from 100 at the 0.01 level of significance; see Technical notes.

**Table 4. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Number of deaths	Tuberculosis (010-018, 137)	Septicemia (038)	All cancers (140-208)	Cancer of oral cavity (140-149)	Cancer of esophagus (150)	Cancer of stomach (151)	Cancer of colon (153)	Cancer of rectum (154)	Cancer of liver (155)	
Number of deaths											
All industries	129,082	100	1,096	27,667	374	272	717	3,433	517	350	
Proportionate mortality ratios											
Agriculture, forestry, and fisheries	010-031	1,110	65	71	98	157	135	118	79	158	102
Mining	040-050	47	-	-	120	-	-	-	-	-	-
Construction	060	317	( <sup>1</sup> )	44	116	277	( <sup>1</sup> )	114	127	-	-
Manufacturing	100-392	10,547	127	94	B 108	90	117	108	94	92	103
Nondurable goods	100-222	7,681	138	105	104	91	96	101	98	99	88
Food and kindred products	100-130	1,154	-	A 180	103	78	72	144	84	122	114
Textile mill and finished products	132-152	4,354	184	93	98	114	107	99	93	59	103
Paper and allied products	160-162	266	( <sup>1</sup> )	141	112	-	-	66	39	82	( <sup>1</sup> )
Printing, publishing, and allied products	171-172	608	-	67	B 131	98	171	59	127	188	55
Chemicals and allied products	180-192	205	-	64	120	-	-	247	166	( <sup>1</sup> )	-
Petroleum and coal products	200-201	17	-	-	76	( <sup>1</sup> )	-	-	( <sup>1</sup> )	-	-
Rubber, plastics, and leather products	210-222	1,077	( <sup>1</sup> )	87	104	27	89	66	114	188	31
Durable goods	230-392	2,866	95	61	B 118	89	171	124	86	75	139
Lumber and other wood products, and furniture	230-242	202	-	63	101	( <sup>1</sup> )	( <sup>1</sup> )	-	86	-	( <sup>1</sup> )
Stone, clay, glass, and concrete products	250-262	84	-	-	109	-	( <sup>1</sup> )	( <sup>1</sup> )	41	-	-
Primary metal industries	270-280	135	-	93	102	-	-	-	124	( <sup>1</sup> )	-
Fabricated metal industries	281-301	290	-	-	B 124	-	( <sup>1</sup> )	118	94	148	219
Machinery, except electrical	310-332	334	( <sup>1</sup> )	42	115	78	302	155	41	-	94
Electrical machinery, equipment, and supplies	340-350	551	-	126	B 121	170	234	208	112	112	156
Transportation equipment	351-370	375	( <sup>1</sup> )	71	B 129	68	( <sup>1</sup> )	45	115	57	164
Miscellaneous manufacturing industries	371-392	895	-	44	B 116	86	97	133	70	73	140
Transportation, communications, and other public utilities	400-472	2,085	137	62	B 111	141	74	106	124	A 185	69
Transportation	400-432	912	( <sup>1</sup> )	94	A 113	142	53	177	125	188	39
Railroads	400	249	-	90	122	( <sup>1</sup> )	-	74	A 186	210	-
Trucking and warehousing	410-411	148	-	-	108	( <sup>1</sup> )	-	227	119	302	-
Other transportation	401-402, 412-432	515	( <sup>1</sup> )	119	111	122	93	211	97	143	68
Communications	440-442	927	( <sup>1</sup> )	A 14	108	145	119	61	116	181	118
Utilities and sanitary services	460-472	246	-	108	112	( <sup>1</sup> )	-	-	146	186	-
Wholesale trade	500-571	713	-	114	A 115	80	144	198	128	157	45
Retail trade	580-691	8,781	94	90	A 104	124	114	102	103	93	89
Food, bakery, and dairy stores	601-611	1,097	-	72	106	54	181	82	100	168	30
Auto dealers and supply stores	612-620	165	-	87	102	( <sup>1</sup> )	-	-	21	257	( <sup>1</sup> )
Eating and drinking places	641	2,605	47	76	94	B 198	A 185	111	84	71	99
Other retail trade	580-600, 621-640, 642-691	4,914	149	101	B 110	97	61	105	116	81	94
Finance, insurance, and real estate	700-712	2,053	72	117	B 121	98	148	86	A 133	146	127
Business and repair services	721-760	847	-	120	102	68	155	41	114	168	37
Automotive services and repair	750-751	53	-	-	A 153	-	-	-	-	( <sup>1</sup> )	-
Other business and repair services	721-742, 752-760	794	-	128	99	73	165	44	121	150	40
Personal services	761-791	7,115	97	113	96	85	93	90	90	97	99
Private households	761	4,334	106	114	B 92	70	77	88	89	116	116
Beauty and barber shops	772-780	773	-	76	A 113	36	51	149	109	58	40
Other personal services	762-771, 781-791	2,008	97	121	96	133	151	74	84	77	90
Entertainment and recreation services	800-802	413	-	153	110	259	317	169	115	-	-

Professional and related services . . . . .	812-892	15,387	110	87	B 114	75	102	103	B 113	A 124	98
Health services . . . . .	812-840	6,183	121	101	103	64	120	79	98	119	57
Educational services . . . . .	842-860	7,376	90	A 71	B 121	60	78	122	B 124	128	130
Social services . . . . .	861-881	1,189	215	122	B 121	107	148	146	A 135	122	148
Legal, engineering, and other services . . . . .	841, 882-892	639	-	66	B 129	A 275	85	57	97	145	101
Public administration . . . . .	900-932	2,197	59	104	B 118	161	96	85	A 128	111	A 174
Military . . . . .	942	93	-	( <sup>1</sup> )	117	718	-	-	85	-	-
Industry not reported . . . . .	951-990	77,377	98	103	B 93	99	93	99	B 96	A 92	102

**Table 4. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.**

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Industry	Cancer of gall-bladder (156)	Cancer of pancreas (157)	Cancer of larynx (161)	Cancer of trachea, bronchus, lung (162)	Cancer of pleura (163)	Cancer of bone (170)	Cancer of connective tissue (171)	Malignant melanoma of skin (172)	Cancer of female breast (174)	Cancer of cervix uteri (180)
Number of deaths										
All industries . . . . .	367	1,532	88	4,466	13	56	200	301	5,110	606
Proportionate mortality ratios										
Agriculture, forestry, and fisheries . . . . . 010-031	74	81	(1)	95	-	-	-	56	106	75
Mining . . . . . 040-050	-	(1)	-	150	-	-	-	-	197	-
Construction . . . . . 060	-	104	(1)	141	(1)	-	(1)	83	113	93
Manufacturing . . . . . 100-392	105	106	78	B 117	77	75	127	66	105	B 141
Nondurable goods . . . . . 100-222	127	103	32	104	(1)	110	131	69	100	A 136
Food and kindred products . . . . . 100-130	119	75	-	A 129	(1)	(1)	90	33	104	148
Textile mill and finished products . . . . . 132-152	105	90	30	91	-	98	139	73	91	123
Paper and allied products . . . . . 160-162	238	143	-	93	-	-	(1)	-	132	137
Printing, publishing, and allied products . . . . . 171-172	159	158	-	136	-	-	98	111	A 142	130
Chemicals and allied products . . . . . 180-192	-	A 255	(1)	114	-	-	-	(1)	A 156	267
Petroleum and coal products . . . . . 200-201	-	-	-	-	-	-	-	-	-	-
Rubber, plastics, and leather products . . . . . 210-222	201	114	-	108	-	(1)	182	68	88	142
Durable goods . . . . . 230-392	45	112	177	B 146	-	-	118	61	A 116	A 152
Lumber and other wood products, and furniture . . . . . 230-242	(1)	75	(1)	147	-	-	(1)	485	106	159
Stone, clay, glass, and concrete products . . . . . 250-262	-	-	-	113	-	-	-	-	119	-
Primary metal industries . . . . . 270-280	-	56	-	114	-	-	(1)	-	120	274
Fabricated metal industries . . . . . 281-301	-	132	-	B 204	-	-	(1)	-	110	111
Machinery, except electrical . . . . . 310-332	99	115	(1)	146	-	-	-	-	111	214
Electrical machinery, equipment, and supplies . . . . . 340-350	-	155	(1)	B 161	-	-	162	48	78	174
Transportation equipment . . . . . 351-370	-	137	555	131	-	-	-	-	134	251
Miscellaneous manufacturing industries . . . . . 371-392	74	94	-	A 132	-	-	105	68	B 139	85
Transportation, communications, and other public utilities . . . . . 400-472	116	93	275	91	-	202	114	102	101	82
Transportation . . . . . 400-432	197	93	306	92	-	(1)	61	153	76	74
Railroads . . . . . 400	(1)	70	-	89	-	-	-	(1)	51	347
Trucking and warehousing . . . . . 410-411	450	104	(1)	94	-	-	-	-	44	-
Other transportation . . . . . 401-402, 412-432	144	100	(1)	92	-	(1)	100	194	95	30
Communications . . . . . 440-442	72	101	330	87	-	(1)	212	79	125	72
Utilities and sanitary services . . . . . 460-472	-	65	-	99	-	-	-	-	110	145
Wholesale trade . . . . . 500-571	45	55	337	91	(1)	-	75	257	127	150
Retail trade . . . . . 580-691	95	92	44	B 123	-	41	115	98	101	110
Food, bakery, and dairy stores . . . . . 601-611	151	102	-	120	-	-	102	121	113	102
Auto dealers and supply stores . . . . . 612-620	-	47	(1)	132	-	-	(1)	-	137	-
Eating and drinking places . . . . . 641	66	97	87	B 129	-	53	105	74	B 75	A 151
Other retail trade . . . . . 580-600, 621-640, 642-691	100	88	-	B 120	-	43	120	112	112	87
Finance, insurance, and real estate . . . . . 700-712	49	A 149	59	115	-	174	122	115	B 133	85
Business and repair services . . . . . 721-760	172	A 163	264	113	-	324	-	101	86	98
Automotive services and repair . . . . . 750-751	(1)	B 615	-	239	-	-	-	-	127	(1)
Other business and repair services . . . . . 721-742, 752-760	137	133	284	104	-	351	-	109	83	88
Personal services . . . . . 761-791	119	110	130	110	-	-	93	148	91	75
Private households . . . . . 761	141	102	65	94	-	-	83	82	89	79
Beauty and barber shops . . . . . 772-780	128	B 181	274	B 145	-	-	127	258	84	80
Other personal services . . . . . 762-771, 781-791	75	100	191	121	-	-	102	180	97	63
Entertainment and recreation services . . . . . 800-802	-	136	-	113	-	(1)	(1)	140	111	32

Professional and related services . . . . .	812-892	84	A 114	85	104	56	137	115	110	B 131	84
Health services . . . . .	812-840	72	101	106	B 119	( <sup>1</sup> )	174	118	97	101	94
Educational services . . . . .	842-860	91	B 127	64	B 83	-	104	92	132	B 158	75
Social services . . . . .	861-881	119	83	-	116	-	( <sup>1</sup> )	47	62	B 159	60
Legal, engineering, and other services . . . . .	841, 882-892	53	169	( <sup>1</sup> )	126	-	-	A 370	128	131	100
Public administration . . . . .	900-932	29	103	96	B 138	-	-	73	32	A 123	79
Military . . . . .	942	( <sup>1</sup> )	190	-	196	-	-	-	-	121	( <sup>1</sup> )
Industry not reported . . . . .	951-990	106	B 94	102	B 89	136	109	94	100	B 90	102

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Industry	Cancer of body of uterus (182)	Cancer of ovary (183)	Cancer of prostate (185)	Cancer of testis (186)	Cancer of bladder (188)	Cancer of kidney, urinary organs (189)	Cancer of brain, nervous system (191-192)	Hodgkin's disease (201)	Other malignant lymphoma (200, 202)	Multiple myeloma, immunoproliferative neoplasms (203)
Number of deaths										
All industries	458	1,569	...	...	426	475	633	79	924	522
Proportionate mortality ratios										
Agriculture, forestry, and fisheries	45	85	...	...	112	195	167	-	110	61
Mining	-	(1)	...	...	(1)	-	-	-	-	-
Construction	87	A-	...	...	206	-	167	(1)	37	-
Manufacturing	B 138	107	...	...	105	116	122	52	98	109
Nondurable goods	114	115	...	...	96	100	115	38	93	101
Food and kindred products	87	98	...	...	130	84	104	-	67	77
Textile mill and finished products	96	111	...	...	95	108	A 145	69	83	117
Paper and allied products	A 377	99	...	...	-	-	118	-	269	-
Printing, publishing, and allied products	87	A 166	...	...	98	38	79	-	176	115
Chemicals and allied products	-	112	...	...	-	-	63	-	56	-
Petroleum and coal products	-	-	...	...	-	-	-	-	-	-
Rubber, plastics, and leather products	185	125	...	...	106	168	47	-	76	103
Durable goods	B 197	90	...	...	129	A 156	136	80	110	127
Lumber and other wood products, and furniture	-	63	...	...	-	(1)	69	(1)	58	(1)
Stone, clay, glass, and concrete products	(1)	137	...	...	-	-	(1)	-	-	(1)
Primary metal industries	353	49	...	...	(1)	-	(1)	(1)	-	(1)
Fabricated metal industries	249	128	...	...	(1)	A 376	95	-	117	74
Machinery, except electrical	298	121	...	...	-	A 334	76	-	67	66
Electrical machinery, equipment, and supplies	240	58	...	...	224	142	153	-	153	111
Transportation equipment	A 360	78	...	...	80	169	148	-	180	113
Miscellaneous manufacturing industries	55	101	...	...	175	73	170	-	103	172
Transportation, communications, and other public utilities	113	124	...	...	118	86	B 203	128	125	131
Transportation	97	116	...	...	174	114	B 286	282	118	163
Railroads	251	80	...	...	235	-	A 429	(1)	122	(1)
Trucking and warehousing	-	77	...	...	450	(1)	159	-	153	(1)
Other transportation	58	144	...	...	64	149	B 294	(1)	104	192
Communications	131	142	...	...	96	55	119	-	110	109
Utilities and sanitary services	(1)	85	...	...	-	98	195	-	197	96
Wholesale trade	184	126	...	...	126	97	41	-	82	226
Retail trade	126	108	...	...	93	98	113	45	95	86
Food, bakery, and dairy stores	144	110	...	...	82	107	72	-	110	127
Auto dealers and supply stores	A 589	70	...	...	-	-	284	-	-	-
Eating and drinking places	96	93	...	...	97	81	73	41	107	A 26
Other retail trade	122	118	...	...	96	110	A 140	62	89	113
Finance, insurance, and real estate	92	110	...	...	91	57	126	162	117	102
Business and repair services	96	84	...	...	157	116	162	-	131	140
Automotive services and repair	-	329	...	...	-	-	-	-	-	-
Other business and repair services	102	66	...	...	166	124	174	-	141	149
Personal services	109	95	...	...	93	69	66	91	90	97
Private households	106	91	...	...	96	71	72	143	73	93
Beauty and barber shops	87	91	...	...	77	90	117	-	94	191
Other personal services	127	105	...	...	93	55	A 31	79	112	68
Entertainment and recreation services	-	46	...	...	159	178	98	-	210	168

Professional and related services . . . . .	812-892	124	B 131	...	...	103	104	110	B 187	A 119	A 124
Health services . . . . .	812-840	108	106	...	...	119	103	96	145	112	90
Educational services . . . . .	842-860	129	B 160	...	...	98	119	131	206	119	B 159
Social services . . . . .	861-881	209	120	...	...	78	65	106	235	112	161
Legal, engineering, and other services . . . . .	841, 882-892	90	140	...	...	49	38	88	313	A 185	38
Public administration . . . . .	900-932	97	119	...	...	136	71	147	128	76	99
Military . . . . .	942	( <sup>1</sup> )	78	...	...	-	-	-	-	( <sup>1</sup> )	-
Industry not reported . . . . .	951-990	B 85	B 90	...	...	97	101	B 86	96	97	94

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Industry	Leukemia (204–208)	All other cancers (152... 193–199)	Diabetes mellitus (250)	Aplastic anemia (284)	Diseases of heart (390–398, 402, 404–429)	Hypertensive heart disease (402)	Hypertensive heart, renal disease (404)	Ischemic heart disease (410–414)	Acute myocardial infarction (410)	All other ischemic heart disease (411–414)
Number of deaths										
All industries . . . . .	1,018	3,161	2,941	100	49,887	1,572	253	33,609	17,236	16,373
Proportionate mortality ratios										
Agriculture, forestry, and fisheries . . . . . 010–031	83	118	106	–	101	97	213	99	101	97
Mining . . . . . 040–050	–	257	–	–	112	–	–	101	108	95
Construction . . . . . 060	98	B 194	87	–	B 78	35	–	B 69	B 59	81
Manufacturing. . . . . 100–392	108	A 112	A 88	72	99	99	62	102	101	103
Nondurable goods . . . . . 100–222	103	112	90	81	100	97	81	102	101	103
Food and kindred products . . . . . 100–130	123	98	116	( <sup>1</sup> )	95	122	50	99	97	103
Textile mill and finished products . . . . . 132–152	94	117	96	112	102	97	84	A 105	106	104
Paper and allied products . . . . . 160–162	84	A 180	81	–	91	69	–	94	92	95
Printing, publishing, and allied products . . . . . 171–172	130	132	59	–	98	135	( <sup>1</sup> )	91	83	101
Chemicals and allied products . . . . . 180–192	51	68	62	–	85	91	–	85	87	83
Petroleum and coal products . . . . . 200–201	–	( <sup>1</sup> )	–	–	81	–	–	71	136	–
Rubber, plastics, and leather products . . . . . 210–222	117	91	64	–	102	55	119	101	100	103
Durable goods . . . . . 230–392	121	111	83	45	97	103	–	102	100	104
Lumber and other wood products, and furniture . . . . . 230–242	53	53	138	–	89	132	–	91	101	77
Stone, clay, glass, and concrete products . . . . . 250–262	–	A 293	206	–	92	–	–	76	47	116
Primary metal industries . . . . . 270–280	–	80	151	–	113	196	–	115	116	114
Fabricated metal industries . . . . . 281–301	37	75	44	–	97	136	–	104	89	125
Machinery, except electrical . . . . . 310–332	A 245	85	65	–	106	160	–	A 121	109	A 137
Electrical machinery, equipment, and supplies . . . . . 340–350	91	104	53	( <sup>1</sup> )	94	77	–	97	93	102
Transportation equipment . . . . . 351–370	143	139	44	–	95	52	–	93	91	96
Miscellaneous manufacturing industries . . . . . 371–392	155	125	104	–	96	96	–	103	111	92
Transportation, communications, and other public utilities . . . . . 400–472	96	119	B 48	61	99	102	56	101	105	96
Transportation . . . . . 400–432	79	136	B 29	( <sup>1</sup> )	94	114	62	99	107	91
Railroads . . . . . 400	168	124	A –	( <sup>1</sup> )	99	223	–	93	84	102
Trucking and warehousing . . . . . 410–411	69	193	–	–	94	–	–	108	132	75
Other transportation . . . . . 401–402, 412–432	46	123	52	–	92	83	( <sup>1</sup> )	101	112	88
Communications . . . . . 440–442	51	105	65	–	103	96	64	102	104	100
Utilities and sanitary services . . . . . 460–472	A 314	109	54	–	100	79	–	101	103	98
Wholesale trade . . . . . 500–571	107	110	62	–	91	A 14	195	98	99	96
Retail trade . . . . . 580–691	104	96	B 78	113	99	118	99	100	99	100
Food, bakery, and dairy stores . . . . . 601–611	71	93	72	( <sup>1</sup> )	A 108	144	176	106	A 115	96
Auto dealers and supply stores . . . . . 612–620	182	44	132	–	100	71	–	107	114	96
Eating and drinking places . . . . . 641	100	B 69	91	48	102	129	50	102	96	109
Other retail trade . . . . . 580–600, 621–640, 642–691	111	114	B 70	150	A 96	107	109	97	97	97
Finance, insurance, and real estate . . . . . 700–712	144	121	B 54	128	B 91	93	134	94	91	97
Business and repair services . . . . . 721–760	77	67	97	–	93	161	83	A 86	B 72	103
Automotive services and repair . . . . . 750–751	( <sup>1</sup> )	70	–	–	68	( <sup>1</sup> )	( <sup>1</sup> )	55	81	21
Other business and repair services . . . . . 721–742, 752–760	69	67	103	–	95	159	–	88	B 71	108
Personal services . . . . . 761–791	B 65	105	A 87	131	100	111	98	98	101	94
Private households . . . . . 761	B 52	112	95	122	A 104	108	85	101	107	93
Beauty and barber shops . . . . . 772–780	145	102	76	( <sup>1</sup> )	B 79	53	–	B 82	A 77	89
Other personal services . . . . . 762–771, 781–791	A 51	93	A 72	132	100	A 138	167	98	97	98
Entertainment and recreation services . . . . . 800–802	53	117	95	–	A 85	65	–	A 82	87	77

Professional and related services . . . . .	812-892	A 121	103	A 88	135	B 95	100	80	B 95	B 92	98
Health services . . . . .	812-840	115	96	101	149	99	117	82	100	97	102
Educational services . . . . .	842-860	A 132	105	B 80	122	B 92	88	95	B 92	B 89	95
Social services . . . . .	861-881	112	86	83	(1)	96	83	-	92	86	99
Legal, engineering, and other services . . . . .	841, 882-892	84	B 180	58	(1)	95	102	-	91	89	95
Public administration . . . . .	900-932	143	108	A 72	121	B 91	124	181	A 92	B 86	99
Military . . . . .	942	(1)	43	98	(1)	83	(1)	-	70	A 36	111
Industry not reported . . . . .	951-990	A 95	B 95	B 112	95	B 102	97	104	B 102	B 102	101

**Table 4. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	All other diseases of heart (390-398, 415-429)	Hypertension with or without renal disease (410,403)	Cerebrovascular diseases (430-438)	Atherosclerosis (440)	Pneumonia and influenza (480-487)	Chronic obstructive pulmonary diseases (490-496)	Pneumoconioses and pneumopathy (500-505)	Ulcer of stomach and duodenum (531-533)	Chronic liver disease and cirrhosis (571)	Nephritis and nephrosis (580-589)	
Number of deaths											
All industries . . . . .	14,453	613	13,639	2,231	4,085	3,486	6	464	1,159	1,480	
Proportionate mortality ratios											
Agriculture, forestry, and fisheries . . . . .	010-031	102	93	96	119	98	116	—	92	102	116
Mining . . . . .	040-050	148	—	90	—	146	161	—	—	—	—
Construction . . . . .	060	105	85	90	77	63	B 227	—	96	76	33
Manufacturing . . . . .	100-392	A 94	116	98	101	A 86	93	A 570	A 64	94	99
Nondurable goods . . . . .	100-222	96	129	102	103	A 87	89	B 869	A 62	103	109
Food and kindred products . . . . .	100-130	A 83	146	94	113	91	109	—	129	117	98
Textile mill and finished products . . . . .	132-152	96	127	A 110	107	A 83	B 73	B 1,579	69	101	120
Paper and allied products . . . . .	160-162	88	174	83	114	128	131	—	—	63	72
Printing, publishing, and allied products . . . . .	171-172	109	123	85	58	88	89	—	—	74	98
Chemicals and allied products . . . . .	180-192	83	—	87	48	64	171	—	( <sup>1</sup> )	94	147
Petroleum and coal products . . . . .	200-201	114	—	186	( <sup>1</sup> )	—	( <sup>1</sup> )	—	—	—	—
Rubber, plastics, and leather products . . . . .	210-222	109	133	91	99	97	106	—	—	126	90
Durable goods . . . . .	230-392	A 87	79	88	96	81	103	—	73	75	70
Lumber and other wood products, and furniture . . . . .	230-242	82	—	114	95	149	156	—	—	39	46
Stone, clay, glass, and concrete products . . . . .	250-262	140	—	74	( <sup>1</sup> )	52	73	—	—	76	—
Primary metal industries . . . . .	270-280	101	—	62	59	57	92	—	( <sup>1</sup> )	—	—
Fabricated metal industries . . . . .	281-301	75	174	86	121	70	106	—	—	81	138
Machinery, except electrical . . . . .	310-332	A 64	327	78	28	115	86	—	—	64	62
Electrical machinery, equipment, and supplies . . . . .	340-350	91	49	98	65	53	109	—	55	81	58
Transportation equipment . . . . .	351-370	105	—	80	49	78	104	—	78	98	53
Miscellaneous manufacturing industries . . . . .	371-392	82	55	91	153	79	95	—	133	81	88
Transportation, communications, and other public utilities . . . . .	400-472	94	123	96	94	97	103	—	67	87	100
Transportation . . . . .	400-432	A 81	99	90	134	74	135	—	32	107	101
Railroads . . . . .	400	101	—	79	122	126	80	—	( <sup>1</sup> )	131	133
Trucking and warehousing . . . . .	410-411	74	—	124	134	30	178	—	—	45	—
Other transportation . . . . .	401-402, 412-432	A 72	177	88	141	53	147	—	—	123	108
Communications . . . . .	440-442	105	128	101	59	132	76	—	59	68	94
Utilities and sanitary services . . . . .	460-472	104	197	98	90	44	94	—	231	73	120
Wholesale trade . . . . .	500-571	82	211	100	139	85	116	—	—	118	99
Retail trade . . . . .	580-691	96	99	97	99	91	108	—	115	96	85
Food, bakery, and dairy stores . . . . .	601-611	106	66	95	86	99	107	—	51	89	53
Auto dealers and supply stores . . . . .	612-620	86	( <sup>1</sup> )	112	117	107	56	—	( <sup>1</sup> )	45	129
Eating and drinking places . . . . .	641	99	89	93	88	103	A 128	—	72	123	107
Other retail trade . . . . .	580-600, 621-640, 642-691	A 92	110	100	105	A 84	100	—	A 147	82	78
Finance, insurance, and real estate . . . . .	700-712	A 85	61	B 80	98	92	98	—	86	104	78
Business and repair services . . . . .	721-760	102	170	87	69	A 152	118	—	—	122	56
Automotive services and repair . . . . .	750-751	62	( <sup>1</sup> )	140	—	86	67	—	—	( <sup>1</sup> )	—
Other business and repair services . . . . .	721-742, 752-760	104	150	84	73	A 156	122	—	—	122	60
Personal services . . . . .	761-791	104	97	98	104	93	102	—	121	108	105
Private households . . . . .	761	B 110	98	98	103	94	A 78	—	95	102	107
Beauty and barber shops . . . . .	772-780	A 75	112	104	94	98	126	—	116	140	102
Other personal services . . . . .	762-771, 781-791	100	90	97	110	89	126	—	171	104	99
Entertainment and recreation services . . . . .	800-802	96	113	92	19	141	86	—	75	90	114

Professional and related services . . . . .	812-892	96	86	100	93	102	93	-	113	B 74	A 82
Health services . . . . .	812-840	97	94	99	92	100	A 114	-	82	84	88
Educational services . . . . .	842-860	A 94	84	102	92	104	B 76	-	A 145	A 71	A 79
Social services . . . . .	861-881	107	90	88	111	92	86	-	74	A 46	76
Legal, engineering, and other services . . . . .	841, 882-892	104	-	97	94	117	69	-	92	51	64
Public administration . . . . .	900-932	A 86	95	92	119	97	112	-	91	122	108
Military . . . . .	942	111	-	89	-	43	113	-	(1)	167	215
Industry not reported . . . . .	951-990	B 102	100	B 102	101	A 102	100	62	102	A 107	A 105

**Table 4. Deaths for 42 selected industries and from 52 selected causes of death, and proportionate mortality ratios for 42 selected industries by 52 selected causes of death for females 20 years of age and over: Total of 12 reporting States, 1984—Con.**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. Numbers after causes of death are category numbers of the *Ninth Revision International Classification of Diseases, 1975*, and numbers after industries are category numbers of the *Classified Index of Industries and Occupations, 1982*. For complete cause-of-death titles and category numbers, see Technical notes. Proportionate mortality ratios (PMR's) are age-race adjusted, see Technical notes. For a listing of reporting States, see Technical notes]

Industry	Accidents and adverse effects (E800-E949)	Motor vehicle accidents (E810-E825)	Accidents mainly of industrial type (E846 . . . E923-E926)	Other accidents (E800-E807 . . . E927-E949)	Suicide (E950-E959)	Homicide and legal intervention (E960-E978)	All other causes (Residual)
Number of deaths							
All industries . . . . .	3,442	1,469	34	1,939	865	515	15,306
Proportionate mortality ratios							
Agriculture, forestry, and fisheries . . . . . 010-031	95	118	(1)	78	172	124	98
Mining . . . . . 040-050	223	220	(1)	(1)	(1)	-	35
Construction . . . . . 060	A 144	136	(1)	144	101	186	100
Manufacturing . . . . . 100-392	107	B 121	67	95	A 82	115	A 95
Nondurable goods . . . . . 100-222	105	A 123	49	90	B 63	120	98
Food and kindred products . . . . . 100-130	117	134	(1)	99	A 39	A 178	94
Textile mill and finished products . . . . . 132-152	99	110	-	91	A 57	115	99
Paper and allied products . . . . . 160-162	123	179	-	78	48	96	103
Printing, publishing, and allied products . . . . . 171-172	88	91	-	86	87	165	83
Chemicals and allied products . . . . . 180-192	157	166	-	149	156	-	91
Petroleum and coal products . . . . . 200-201	289	522	-	-	(1)	-	50
Rubber, plastics, and leather products . . . . . 210-222	104	150	-	73	66	36	103
Durable goods . . . . . 230-392	112	117	(1)	106	112	106	B 86
Lumber and other wood products, and furniture . . . . . 230-242	125	171	-	58	78	68	101
Stone, clay, glass, and concrete products . . . . . 250-262	32	62	-	-	271	A 503	108
Primary metal industries . . . . . 270-280	127	-	-	213	-	B 934	90
Fabricated metal industries . . . . . 281-301	131	154	-	108	87	-	83
Machinery, except electrical . . . . . 310-332	111	131	-	85	151	42	77
Electrical machinery, equipment, and supplies . . . . . 340-350	116	131	-	99	101	98	83
Transportation equipment . . . . . 351-370	104	123	(1)	70	149	51	86
Miscellaneous manufacturing industries . . . . . 371-392	109	87	-	138	95	85	87
Transportation, communications, and other public utilities . . . . . 400-472	103	130	(1)	78	B 161	133	93
Transportation . . . . . 400-432	122	B 183	-	66	A 179	173	94
Railroads . . . . . 400	126	233	-	88	A 480	-	85
Trucking and warehousing . . . . . 410-411	144	196	-	71	106	217	91
Other transportation . . . . . 401-402, 412-432	112	A 170	-	56	171	172	98
Communications . . . . . 440-442	70	55	-	84	156	74	98
Utilities and sanitary services . . . . . 460-472	147	167	(1)	100	114	140	76
Wholesale trade . . . . . 500-571	99	96	-	105	120	26	95
Retail trade . . . . . 580-691	A 112	B 118	157	103	106	B 141	97
Food, bakery, and dairy stores . . . . . 601-611	85	130	-	A 41	143	A 196	A 80
Auto dealers and supply stores . . . . . 612-620	104	176	-	-	163	163	77
Eating and drinking places . . . . . 641	111	106	(1)	118	100	B 152	99
Other retail trade . . . . . 580-600, 621-640, 642-691	A 120	A 126	238	113	96	104	100
Finance, insurance, and real estate . . . . . 700-712	A 122	B 139	290	99	84	105	104
Business and repair services . . . . . 721-760	B 135	134	(1)	134	131	115	93
Automotive services and repair . . . . . 750-751	121	140	-	88	88	337	46
Other business and repair services . . . . . 721-742, 752-760	A 136	133	(1)	137	135	97	97
Personal services . . . . . 761-791	108	A 124	81	97	103	A 131	105
Private households . . . . . 761	96	94	-	99	96	116	104
Beauty and barber shops . . . . . 772-780	117	129	(1)	98	118	96	A 121
Other personal services . . . . . 762-771, 781-791	121	B 150	(1)	93	99	A 158	99
Entertainment and recreation services . . . . . 800-802	75	84	-	66	A 184	187	119

Professional and related services . . . . .	812-892	A 109	A 115	46	104	104	104	B 95
Health services . . . . .	812-840	103	112	52	94	96	113	94
Educational services . . . . .	842-860	B 120	A 126	54	117	121	109	95
Social services . . . . .	861-881	111	130	-	95	56	61	97
Legal, engineering, and other services . . . . .	841, 882-892	77	71	-	86	138	64	87
Public administration . . . . .	900-932	106	118	( <sup>1</sup> )	94	95	68	93
Military . . . . .	942	140	136	-	149	69	176	77
Industry not reported . . . . .	951-990	B 92	B 78	86	100	96	B 78	B 102

<sup>1</sup>Proportionate mortality ratio not computed since observed deaths equaled 1 and expected deaths were less than 1.0.

A-Proportionate mortality ratio is significantly different from 100 at the 0.05 level of significance (see Technical notes).

B-Proportionate mortality ratio is significantly different from 100 at the 0.01 level of significance (see Technical notes).

**Table 5. Deaths and percent distribution by selected occupations: Total of 12 reporting States and each State, 1984**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. For a listing of reporting States, see Technical notes]

State of residence	All occupations	U.S. Bureau of the Census occupation categories	Special death certificate occupation categories						
			Military	Homemaker	Volunteer	Student	Unemployed, never worked	Retired	Unknown
Number									
All reporting States . . . . .	269,797	183,652	2,573	74,359	12	494	3,311	1,716	3,680
Colorado . . . . .	19,001	11,985	319	5,803	1	78	149	27	639
Georgia . . . . .	43,207	30,493	609	11,004	—	84	643	95	279
Kansas . . . . .	21,345	13,862	156	6,739	5	44	193	194	152
Kentucky . . . . .	30,742	18,777	214	8,510	1	57	693	1,288	1,202
Maine . . . . .	10,393	7,414	92	2,607	1	13	122	5	139
Missouri . . . . .	46,573	31,704	292	13,287	3	98	587	81	521
Nebraska . . . . .	13,785	8,905	90	4,605	—	39	88	1	57
Nevada . . . . .	6,097	4,363	116	1,441	—	4	32	—	141
New Hampshire . . . . .	7,000	5,252	68	1,507	—	16	56	16	85
Rhode Island . . . . .	8,824	6,337	54	2,137	—	8	84	8	196
South Carolina . . . . .	24,317	18,100	455	5,260	1	51	375	—	75
Wisconsin . . . . .	38,513	26,460	108	11,459	—	2	289	1	194
Percent distribution <sup>1</sup>									
All reporting States . . . . .	100.0	68.1	1.0	27.6	0.0	0.2	1.2	0.6	1.4
Colorado . . . . .	100.0	63.1	1.7	30.5	0.0	0.4	0.8	0.1	3.4
Georgia . . . . .	100.0	70.6	1.4	25.5	—	0.2	1.5	0.2	0.6
Kansas . . . . .	100.0	64.9	0.7	31.6	0.0	0.2	0.9	0.9	0.7
Kentucky . . . . .	100.0	61.1	0.7	27.7	0.0	0.2	2.3	4.2	3.9
Maine . . . . .	100.0	71.3	0.9	25.1	0.0	0.1	1.2	0.0	1.3
Missouri . . . . .	100.0	68.1	0.6	28.5	0.0	0.2	1.3	0.2	1.1
Nebraska . . . . .	100.0	64.6	0.7	33.4	—	0.3	0.6	0.0	0.4
Nevada . . . . .	100.0	71.6	1.9	29.6	—	0.1	0.5	—	2.3
New Hampshire . . . . .	100.0	75.0	1.0	21.5	—	0.2	0.8	0.2	1.2
Rhode Island . . . . .	100.0	71.8	0.6	24.2	—	0.1	1.0	0.1	2.2
South Carolina . . . . .	100.0	74.4	1.9	21.6	0.0	0.2	1.5	—	0.3
Wisconsin . . . . .	100.0	68.7	0.3	29.8	—	0.0	0.8	0.0	0.5

<sup>1</sup>Due to rounding, percents may not add to total.**Table 6. Deaths and percent distribution by selected industries: Total of 12 reporting States and each State, 1984**

[Data include only deaths to residents of a 12-State reporting area occurring in the area. For a listing of reporting States, see Technical notes]

State of residence	All industries	U.S. Bureau of the Census industry categories	Special death certificate industry categories			
			Military	Never worked, unemployed, home-making, student, etc.	Retired	Unknown
Number						
All reporting States . . . . .	269,797	183,709	2,789	77,737	763	4,799
Colorado . . . . .	19,001	12,152	318	5,842	5	684
Georgia . . . . .	43,207	30,576	648	11,682	1	300
Kansas . . . . .	21,345	14,087	166	6,901	28	163
Kentucky . . . . .	30,742	19,016	267	9,223	670	1,566
Maine . . . . .	10,393	7,341	95	2,738	2	217
Missouri . . . . .	46,573	31,494	340	13,908	51	780
Nebraska . . . . .	13,785	8,886	92	4,729	—	78
Nevada . . . . .	6,097	4,262	121	1,472	—	242
New Hampshire . . . . .	7,000	5,267	65	1,578	4	86
Rhode Island . . . . .	8,824	6,325	55	2,230	2	212
South Carolina . . . . .	24,317	18,109	456	5,684	—	68
Wisconsin . . . . .	38,513	26,194	166	11,750	—	403
Percent distribution <sup>1</sup>						
All reporting States . . . . .	100.0	68.1	1.0	28.8	0.3	1.8
Colorado . . . . .	100.0	64.0	1.7	30.7	0.0	3.6
Georgia . . . . .	100.0	70.8	1.5	27.0	0.0	0.7
Kansas . . . . .	100.0	66.0	0.8	32.3	0.1	0.8
Kentucky . . . . .	100.0	61.9	0.9	30.0	2.2	5.1
Maine . . . . .	100.0	70.6	0.9	26.3	0.0	2.1
Missouri . . . . .	100.0	67.6	0.7	29.9	0.1	1.7
Nebraska . . . . .	100.0	64.5	0.7	34.3	—	0.6
Nevada . . . . .	100.0	69.9	2.0	24.1	—	4.0
New Hampshire . . . . .	100.0	75.2	0.9	22.5	0.1	1.2
Rhode Island . . . . .	100.0	71.7	0.6	25.3	0.0	2.4
South Carolina . . . . .	100.0	74.5	1.9	23.4	—	0.3
Wisconsin . . . . .	100.0	68.0	0.4	30.5	—	1.0

<sup>1</sup>Due to rounding, percents may not add to total.

## Technical notes

### Nature and sources of data

Data shown in this report are based on information for deaths occurring in 12 reporting States in 1984, and this information was coded by the States from original death certificates filed in State vital registration offices. The 12 reporting States are Colorado, Georgia, Kansas, Kentucky, Maine, Missouri, Nebraska, Nevada, New Hampshire, Rhode Island, South Carolina, and Wisconsin. Except for the occupation and industry information, coded information from individual certificates was provided to the National Center for Health Statistics (NCHS) through the Vital Statistics Cooperative Program (VSCP). Of the 12 States reporting coded occupation and industry information in 1984, all but Georgia participated in the VSCP program; for these States part or all of the mortality data for 1984 was provided on computer tape to NCHS. Mortality data in this report refer to all deaths to residents of the 12-State reporting area occurring in that area.

### Occupation and industry items on death certificate

The information in this report is based on occupation and industry entries on the death certificate, in response to the questions in item 14a of the Standard Certificate of Death, "Usual Occupation (Give kind of work done during most of the working life, even if retired)" and item 14b, "Kind

of Business or Industry." Illustrative occupation, industry, and medical entries on a death certificate of a 63-year-old female are shown in figure I. The Standard Certificate of Death is issued by the Public Health Service as a means of attaining uniformity in the content of vital statistics information collected by the States. Although the certificates in each State may differ somewhat from the Standard to the extent required by the needs of the State or by special provisions of the State vital statistics law, the certificates of most States conform closely in content and arrangement to the Standard.

### Cause-of-death classification

The mortality statistics in this report were compiled in accordance with the World Health Organization (WHO) regulations, which specify that member nations classify causes of death by the current *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* (22). Causes of death for 1984 were classified according to the *Ninth Revision International Classification of Diseases* (ICD-9). Besides specifying the classification, the WHO regulations outline the form of the medical certification and the procedures to be used in coding cause of death. Cause-of-death data presented in this publication were coded by procedures outlined in issues of Part 2a of the NCHS Instruction Manual (35).

### Cause-of-death lists

For analysis of occupation and industry mortality data a special cause-of-death list was developed jointly by NCHS, NIOSH, and NCI. The list of 52 causes (table I) includes 13 of the 15 leading causes of death in the United States for 1984, along with a number of causes of special interest in relation to occupational exposures, particularly malignant neoplasms of selected sites. Congenital anomalies and Certain conditions originating in the perinatal period are the 2 of the 15 leading causes not included among the 52 causes of death because they occur primarily among infants.

### Classification of occupation and industry

Occupation and industry information from the death certificate is classified according to the U.S. Bureau of the Census publication, *Classified Index of Industries and Occupations* (20). The information is coded using a special adaptation of the occupation and industry coding instructions used by the U.S. Bureau of the Census for information reported on censuses and surveys. The instructions, used by NCHS and the reporting States, are in the *NCHS Instruction Manual, Industry and Occupation Coding for Death Certificates* (21).

### Proportionate mortality ratios and significance testing

The computer program for computing proportionate mortality ratios

14a. USUAL OCCUPATION (Give kind of work done during most of working life, even if retired) <b>Weaver</b>		14b. KIND OF BUSINESS OR INDUSTRY <b>Cotton cloth mill</b>		
CONDITIONS IF ANY WHICH GAVE RISE TO IMMEDIATE CAUSE STATING THE UNDERLYING CAUSE LAST  <b>CAUSE OF DEATH</b>	25. IMMEDIATE CAUSE [ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c).] PART I (a) <b>Respiratory acidosis</b> DUE TO, OR AS A CONSEQUENCE OF			Interval between onset and death <b>12 hours</b>
	(b) <b>Bronchopneumonia</b> DUE TO, OR AS A CONSEQUENCE OF.			Interval between onset and death <b>4 days</b>
	(c) <b>Byssinosis</b>			Interval between onset and death <b>5 years</b>
	PART II OTHER SIGNIFICANT CONDITIONS—Conditions contributing to death but not related to cause given in PART I (a)			26. AUTOPSY (Specify Yes or No) <b>Yes</b>
28a. ACC. SUICIDE, HOM. UNDET., OR PENDING INVEST. (Specify) <b>Natural</b>		28b. DATE OF INJURY (Mo., Day, Yr.)	28c. HOUR OF INJURY <b>M</b>	28d. DESCRIBE HOW INJURY OCCURRED
28e. INJURY AT WORK (Specify Yes or No)		28f. PLACE OF INJURY—At home, farm, street, factory, office building, etc. (Specify)	28g. LOCATION STREET OR R.F.D. No.	28h. CITY OR TOWN STATE
27. WAS CASE REFERRED TO MEDICAL EXAMINER OR CORONER (Specify Yes or No) <b>NO</b>				

Figure I. Illustrative entries on death certificate of a 63-year-old female

Table I. List of 52 selected causes of death

Number	Cause of death	
1	Tuberculosis, including late effects . . . . .	010-018,137
2	Septicemia . . . . .	.038
	Malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .	140-208
3	Malignant neoplasms of lip, oral cavity, and pharynx . . . . .	140-149
4	Malignant neoplasm of esophagus . . . . .	150
5	Malignant neoplasm of stomach . . . . .	151
6	Malignant neoplasm of colon . . . . .	153
7	Malignant neoplasms of rectum, rectosigmoid junction, and anus . . . . .	154
8	Malignant neoplasms of liver and intrahepatic bile ducts . . . . .	155
9	Malignant neoplasms of gallbladder and extrahepatic bile ducts . . . . .	156
10	Malignant neoplasm of pancreas . . . . .	157
11	Malignant neoplasm of larynx . . . . .	161
12	Malignant neoplasms of trachea, bronchus, and lung . . . . .	162
13	Malignant neoplasm of pleura . . . . .	163
14	Malignant neoplasms of bone and articular cartilage . . . . .	170
15	Malignant neoplasms of connective and other soft tissue . . . . .	171
16	Malignant melanoma of skin . . . . .	172
17	Malignant neoplasm of female breast . . . . .	174
18	Malignant neoplasm of cervix uteri . . . . .	180
19	Malignant neoplasm of body of uterus . . . . .	182
20	Malignant neoplasms of ovary and other uterine adnexa . . . . .	183
21	Malignant neoplasm of prostate . . . . .	185
22	Malignant neoplasm of testis . . . . .	186
23	Malignant neoplasm of bladder . . . . .	188
24	Malignant neoplasms of kidney and other and unspecified urinary organs . . . . .	189
25	Malignant neoplasms of brain and other and unspecified parts of nervous system . . . . .	191-192
26	Hodgkin's disease . . . . .	201
27	Malignant lymphoma other than Hodgkin's disease . . . . .	200,202
28	Multiple myeloma and immunoproliferative neoplasms . . . . .	203
29	Leukemia . . . . .	204-208
30	All other malignant neoplasms, including neoplasms of lymphatic and hematopoietic tissues . . . . .	152,158-160,164-165,173,175,179,181,184,187,190,193-199
31	Diabetes mellitus . . . . .	250
32	Aplastic anemia . . . . .	284
	Diseases of heart . . . . .	390-398,402,404-429
33	Hypertensive heart disease . . . . .	402
34	Hypertensive heart and renal disease . . . . .	404
	Ischemic heart disease . . . . .	410-414
35	Acute myocardial infarction . . . . .	410
36	All other ischemic heart disease . . . . .	411-414
37	All other diseases of heart . . . . .	390-398,415-429
38	Hypertension with or without renal disease . . . . .	401,403
39	Cerebrovascular diseases . . . . .	430-438
40	Atherosclerosis . . . . .	440
41	Pneumonia and influenza . . . . .	480-487
42	Chronic obstructive pulmonary diseases and allied conditions . . . . .	490-496
43	Pneumoconioses and pneumopathy due to inhalation of other dust . . . . .	500-505
44	Ulcer of stomach and duodenum . . . . .	531-533
45	Chronic liver disease and cirrhosis . . . . .	571
46	Nephritis, nephrotic syndrome, and nephrosis . . . . .	580-589
	Accidents and adverse effects . . . . .	E800-E949
47	Motor vehicle accidents . . . . .	E810-E825
48	Accidents mainly of industrial type . . . . .	E846,E881-E882,E916-E919,E921,E923-E926
49	Other accidents and adverse effects . . . . .	E800-E807,E826-E845,E847-E880,E883-E915,E920, E922,E927-E949
50	Suicide . . . . .	E950-E959
51	Homicide and legal intervention . . . . .	E960-E978
52	All other causes . . . . .	Residual

(PMR's) and statistical tests was developed by NIOSH. The PMR does not make use of a population at risk and, therefore, is not equivalent to a death rate. The PMR for an occupation (industry) indicates whether the proportion of deaths attributed to a particular cause of death is higher (greater than 100) or lower (less than 100) than the corresponding proportion for all occupations (industries) combined. In this report PMR's are age-race-adjusted for males and females.

PMR's for males and females are computed using the following typical table for a specific age-race group:

Occupation (Industry)	Cause of death		All causes
	Cause X	Other causes	
Occupation Y . . . . .	A <sub>i</sub>	B <sub>i</sub>	N <sub>1i</sub>
Other occupations . . . . .	C <sub>i</sub>	D <sub>i</sub>	N <sub>2i</sub>
All occupations . . . . .	M <sub>1i</sub>	M <sub>2i</sub>	T <sub>i</sub>

where:

- i = i<sup>th</sup> age-race group (5-year age groups 20–24, 25–29, etc. for the white and black populations)
- A<sub>i</sub> = observed number of deaths for a specific occupation (industry) and cause-of-death combination for the i<sup>th</sup> age-race group
- E(A<sub>i</sub>) = expected number of deaths for a specific occupation (industry) and cause-of-death combination for the i<sup>th</sup> age-race group
- $E(A_i) = \frac{M_{1i}N_{1i}}{T_i}$
- $PMR = \frac{\sum A_i}{\sum E(A_i)} \cdot 100$

To test the hypothesis of independence between the occupation (industry) and the cause of death (that is, to test the hypothesis that the PMR = 100), the following Mantel-Haenszel (M-H) chi-square test with one-degree of freedom (36) is used when the expected number of deaths was five or more:

$$M-H \chi^2 = \frac{[\sum A_i - \sum E(A_i)]^2}{\sum \frac{M_{1i}M_{2i}N_{1i}N_{2i}}{T_i^2(T_i - 1)}}$$

For this study this formula excludes the correction for continuity. A PMR is significantly different from 100 at the 0.05 level or 0.01 level if the computed M-H chi-square is greater than or equal to 3.84 or 6.63, respectively. In the tables the 0.05 level is indicated by an "A" and the 0.01 level, by a "B".

When the expected number of deaths is less than five, the statistical test used is the ratio of an observed value of a Poisson variable to its expectation (37).

Caution should be exercised in accepting statistically significant PMR's as being truly significant. Since approximately 12,000 PMR's in tables 1–4 were statistically tested, about 600 would be expected to be statistically significant at least at the 0.05 level, just due to chance (24).

### Quality of cause of death

The use of a standard classification list, essential for the presentation and analysis of cause-of-death data, does not assure strict comparability of tabulated figures. A high degree of comparability could only be attained if all records of cause of death were reported with equal accuracy and completeness. The medical certification of cause of death can be made only by a qualified person, usually a physician, a medical examiner, or a coroner. Therefore, the reliability and accuracy of cause-of-death statistics are, to a large extent, governed by the ability of the certifier to make the proper diagnosis and by the care with which this information is recorded on the death certificate.

A number of studies have been undertaken on the quality of medical certification on the death certificate. In general, these have been for relatively small samples and for limited geographic areas. A bibliography (38) covering 128 references over a period of 23 years indicates that no definitive conclusions have been reached about the quality of medical certification on the death certificate.

### Occupation and industry lists

The list of 46 selected occupations and the list of 42 selected industries were developed by NIOSH, NCHS, and NCI, based on the U.S. Bureau of the Census' tabulation list presented in the *Classified Index of Industries and Occupations* (20). The occupation categories shown in the list of 46 selected occupations are similar to the U.S. Bureau of the Census' major groups, some of which were subdivided on the basis of similarity of occupations. Military and Homemaker were added to the occupation categories. The industry categories shown in the list of 42 selected industries are identical with the U.S. Bureau of the Census' major groups, some of which were also subdivided on the basis of similarity of industries. The category "Military" was added to the industry categories.

### Public-use data tapes

Beginning with data for 1985, mortality public-use data tapes include information on the occupation and industry of the decedent, along with other coded demographic and medical information. The detailed contents of the mortality data tapes and other public-use data tapes from NCHS are described in the NCHS publication *Catalog of Public Use Data Tapes from the National Center for Health Statistics* (39), although the occupation and industry items were inadvertently left out of the list of contents. Mortality public-use data tapes for 1985–91 may be purchased from:

National Technical Information Service  
 5285 Port Royal Road  
 Springfield, Virginia 22161  
 (703) 487-4650

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**Suggested citation**

Rosenberg HM, Burnett C, Maurer J, Spirtas R. Mortality by occupation, industry, and cause of death: 12 reporting States, 1984. Monthly vital statistics report; vol 42 no 4, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1993

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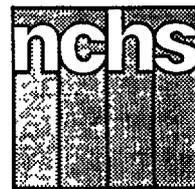
**National Center for Health Statistics**

Director  
Manning Feinleib, M.D., Dr. P.H.

Deputy Director  
Jack R. Anderson

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# Monthly Vital Statistics Report



Final Data From the National Center for Health Statistics

## Firearm Mortality Among Children, Youth, and Young Adults 1–34 Years of Age, Trends and Current Status: United States, 1979–88

by Lois A. Fingerhut, M.A., Joel C. Kleinman, Ph.D., Elizabeth Godfrey, M.S., and Harry Rosenberg, Ph.D.

### Contents

Introduction and background .....	1
Results .....	2
Current status .....	2
Trends .....	4
Summary .....	5
References .....	5
Table 1 .....	7
Table 2 .....	11
Technical notes .....	15

### Introduction and background

A previous report of the National Center for Health Statistics (NCHS) emphasized the level of firearm mortality among children and youth (1). The report showed that in 1987, 11 percent of deaths among children and youth aged 1–19 years resulted from firearm use. In addition, in a recent paper (2) the homicide rate for young males 15–24 years of age in the United States was compared with rates in 21 industrialized countries. Not only was the U.S. homicide rate 4 to 70 times the homicide rates in other countries, but three-fourths of these homicides in the United States were committed with firearms, compared

with less than one-fourth in the other countries.

Furthermore, the need to reduce the level of violent deaths among teenagers (15–19 year olds) and young adults in the United States is the focus of several of the Year 2000 Objectives for the Nation (3). Specifically, reductions are targeted for: the homicide rate for all persons, with special targets set for children 3 years of age and under, for black males and females ages 15–34 years and for Hispanic males ages 15–34 years; the suicide rate for all persons, with special targets set for young persons 15–19 years of age, and for males 20–34 years of age; and the weapon-related violent death rate for all persons.

Although the previous firearm mortality report was limited to children ages 1–19 years, this report extends the age groups to those 20–34 years of age in order to include those ages where the risk of homicide, and, in particular, of firearm-related homicide, is greatest (figure 1). In 1988, 77 percent of homicides among teenagers 15–19 years of age were associated with firearm use (88 percent among black males); at 20–24 years of age, 70 percent of homicides resulted from firearm use (81 percent among

black males); at 25–29 years of age, 68 percent were firearm related (75 percent among black males); and at 30–34 years of age, 64 percent (70 percent among black males) were caused by firearm use.

Suicide rates follow an age pattern different from homicide rates; death rates are fairly constant at ages 20–64 years, and peak for the older population age groups (figure 2). The age-specific proportions of suicides resulting from firearm use are lower than the proportions of homicides, averaging 53–61 percent of suicides at 10–14 years of age through 30–34 years of age.

The purpose of this report is to update and expand the previous report on firearm mortality (1), focusing on firearm deaths associated with homicide, suicide, and unintentional injury (used synonymously with the term “accident” as defined in the International Classification of Diseases) among children, youth, and young adults ages 1–34 years.

The analysis of firearm mortality for persons 15–34 years of age concentrates on males although the analysis for persons 1–14 years of age is for each sex. The emphasis on males at the older ages is because firearm death



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Manning Feinleib, M.D., Dr. P.H., Director



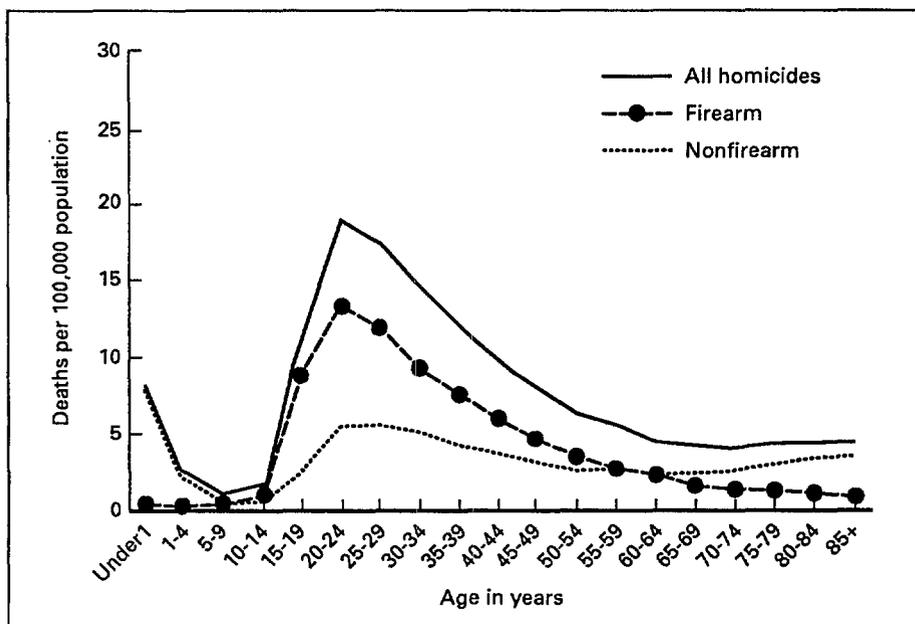


Figure 1. Death rates due to homicide, by age and firearm status: United States, 1988

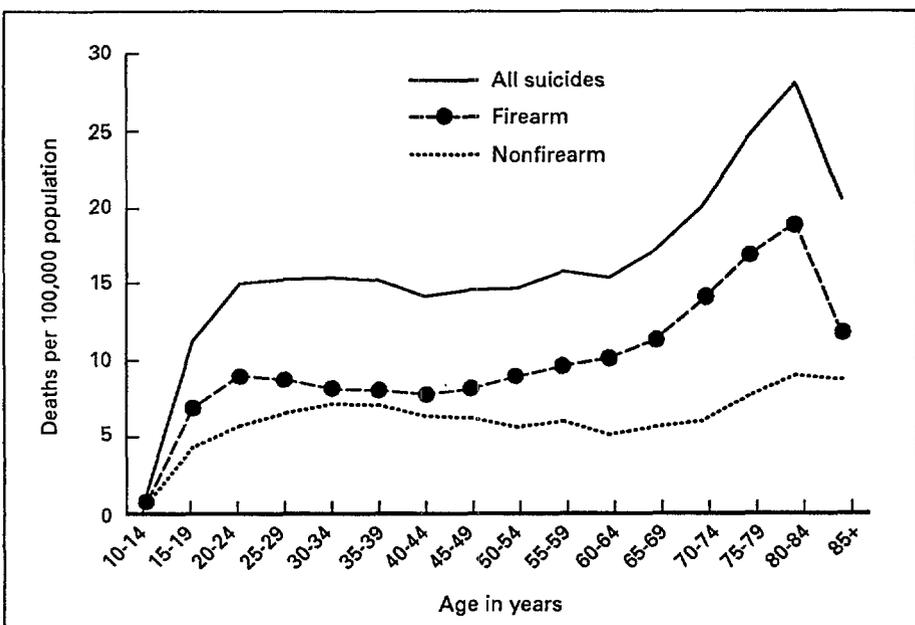


Figure 2. Death rates due to suicide, by age and firearm status: United States, 1988

rates for black and white males in each age group substantially exceed the respective rates for black and white females. Particularly high mortality sex ratios in firearm mortality are evident at 15–19 years of age through 30–34 years of age. For white persons, male firearm death rates are 5–7 times rates for females and for black persons, male firearm death rates are 6–9 times rates for females.

**Results**

To gain perspective on the magnitude of firearm mortality among this country's youth, it is instructive to compare trends in firearm mortality among teenage males with those in mortality associated with natural causes of death, that is, with diseases rather than with injuries or violence (figure 3). For black males 15–19 years of age, the firearm death rate in

1979 was 1.5 times the death rate from natural causes. A decade earlier, the two rates were nearly identical. Between 1979 and 1988, the natural causes death rate was relatively stable.

The trend in firearm mortality among black males 15–19 years of age, however, has been quite different. From 1980 to 1984, the firearm death rate declined 21 percent to 35.8 firearm deaths per 100,000 population. In 1984, the firearm death rate was 1.4 times the natural causes death rate. From 1984 to 1988, the firearm death rate for black males more than doubled at an annual rate of 18.6 percent to 79.5 per 100,000. Thus, by 1988, the firearm death rate for black teenage males was 2.8 times the rate for natural causes of death.

For white males 15–19 years of age, the natural causes death rate in 1979 was 11 percent higher than the firearm death rate. A decade earlier, the natural causes death rate was 2.6 times the firearm death rate. During the 1980's, the natural causes death rate for white teenage males varied little, from 19–22 deaths per 100,000 population. Firearm mortality has shown somewhat more variation, and, in 1988, the firearm death rate exceeded the natural causes death rate for the first time (by 11 percent).

**Current status**

In 1988, 17,249 firearm deaths occurred among persons 1–34 years of age. This represented 15 percent of all deaths at those ages. Nearly 4,000 firearm deaths were among children 1–19 years of age, accounting for 12 percent of all deaths in that age group. Of those firearm deaths, about 3,200 were among teenagers 15–19 years of age, accounting for 20 percent of all teenage deaths. At ages 20–24 years, 21 percent of all deaths resulted from firearm use; 18 percent of all deaths at ages 25–29 years, and 12 percent of all deaths at ages 30–34 years resulted from firearm use.

Variation by race and sex within age groups is large, especially for teenagers ages 15–19 years (figure 4). Among black teenage males, 48 percent of the deaths were firearm-related, compared with 18 percent

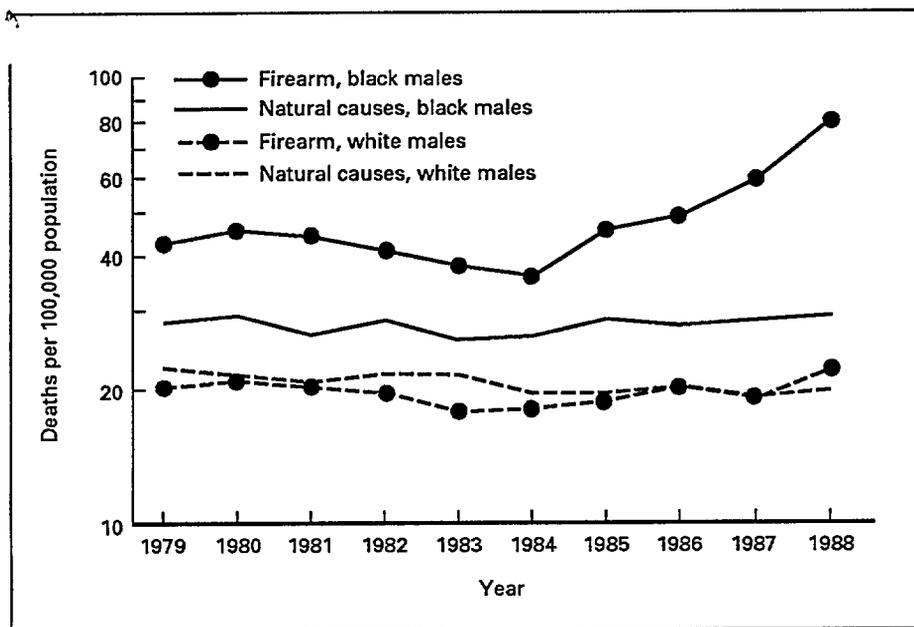


Figure 3. Death rates due to firearms and natural causes, for white and black males aged 15-19 years: United States, 1979-88

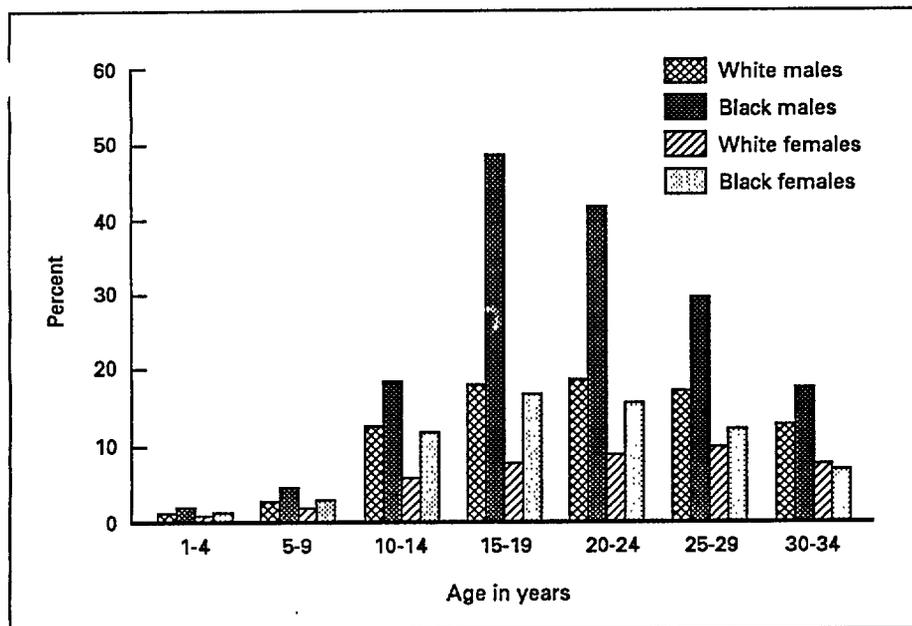


Figure 4. Percent of all deaths due to firearms by age, race, and sex: United States, 1988

among white teenage males. Among black females, 17 percent of deaths resulted from firearm use, compared with 8 percent among white females. Among white males 20-24 years of age through 25-29 years of age, 17-19 percent of deaths were caused by firearm use, compared with 30-42 percent among black males. Among females, firearm deaths accounted for

6-17 percent of all deaths at 10-14 years of age through 30-34 years of age, with percentages among black females exceeding those for white females except at ages 30-34 years.

The risk of firearm death rises until the young adult years and then declines. In 1988, the firearm death rate increased from less than 1 per 100,000 population at ages 1-4 years

and 5-9 years, to 3.1 at ages 10-14 years, to 17.7 at ages 15-19 years, peaking at 23.9 at ages 20-24 years and declining to 21.6 and 18.3 at ages 25-29 years and 30-34 years, respectively (figure 5 and table 1).

The manner of firearm deaths varies by age. Among the youngest children, those 1-9 years of age, homicide accounted for 56 percent and unintentional firearm injuries for 43 percent of the firearm deaths in 1988. At ages 10-14 years, homicide and unintentional firearm injuries each accounted for about 35 percent, suicide for 24 percent, and intent unknown for 6 percent of the firearm deaths. (At all other ages, intent unknown accounted for only 1-2 percent of the firearm deaths.) At 15-19 years of age through 30-34 years of age, homicides accounted for 51-56 percent of firearm deaths (82-87 percent among black males), and suicides accounted for 38-45 percent of firearm deaths (58-60 percent among white males).

The overall age patterns in firearm mortality among white and black males are similar. However, within each age group the risk of firearm death is strongly associated with race. Firearm mortality race ratios (black compared with white) average 2-3:1 for males ages 1-14 years and for females through ages 30-34 years, although for males 15-19 years of age through 30-34 years of age, race ratios are closer to 4:1.

For children 1-9 years of age, firearm homicide rates for black males were four times the rates for white males; race ratios were smaller for females 1-9 years of age (2-3:1). Unintentional firearm injury death rates were twice as high for black males ages 1-4 years and 5-9 years as for white males. Death rates were lower and differences were smaller for females 1-9 years of age.

At ages 10-14 years, black males were more than five times as likely as white males to have been firearm homicide victims (4.5 compared with 0.8 deaths per 100,000 population); white males were more apt to have died from firearm suicides, 1.2 compared with 0.7 deaths per 100,000

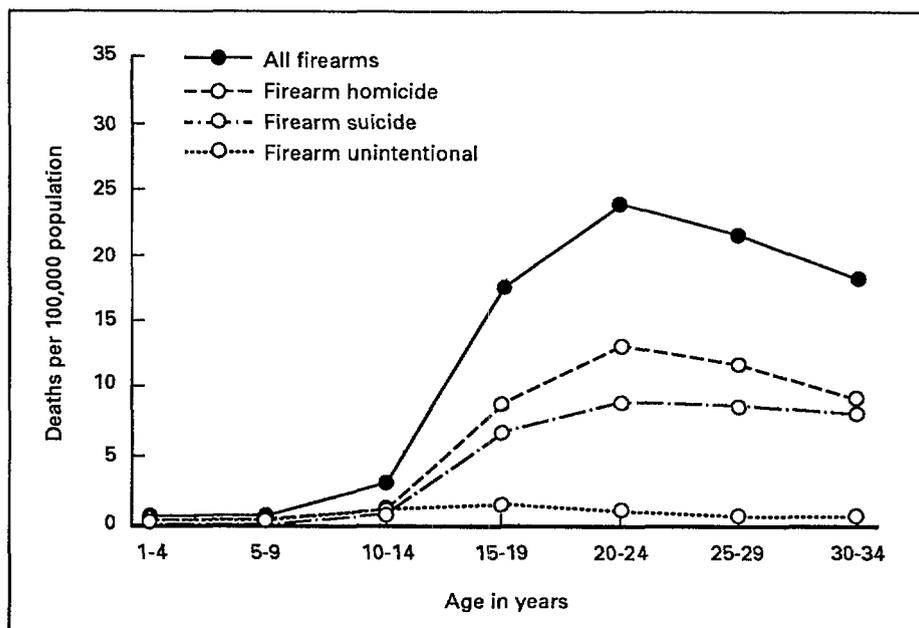


Figure 5. Firearm death rates by manner of death and age, for persons 1-34 years: United States, 1988

population. Although the firearm homicide rates were much lower for females ages 10-14 years, race differences in firearm homicides were about as high for females as for males. Race differences in unintentional firearm mortality were smaller than for homicide; the rate for black males 10-14 years of age was 1.2 times that for white males, 2.1 compared with 1.8 firearm deaths per 100,000. Although the unintentional firearm death rates were considerably lower for females 10-14 years of age, race differences were larger than among males, 2:1.

For black males 15-19 years of age, the firearm homicide rate was more than 11 times the rate for white males, 67.9 compared with 6.0 per 100,000 population. In contrast, the firearm suicide rate was nearly twice as high for white male as for black male teenagers, 12.7 compared with 6.8 per 100,000 population.

At 20-24 years of age through 30-34 years of age, black male firearm homicide rates were 8-10 times those for white males. Race differences (white compared with black) in firearm suicide rates at these ages were considerably smaller, less than 2:1.

### Trends (tables 1 and 2)

Consistent with earlier patterns (1), there was virtually no change from 1987 to 1988 in the overall firearm death rate for young children 1-4 or 5-9 years of age. For children ages 10-14 years, however, 1988 was the second consecutive year of a small increase in the firearm death rate, with the rate rising to its highest level, 3.1 firearm deaths per 100,000. In this age group, the greatest change occurred for black females for whom the firearm death rate more than doubled from 1.4 to 3.6 firearm deaths per 100,000.

From 1979 to 1984, the firearm death rate for teenagers 15-19 years of age decreased 11 percent to 12.4 per 100,000. After 1984, however, the death rate increased 43 percent, rising 20 percent in 1988 to 17.7 deaths per 100,000, the highest level to date. These recent increases were concentrated among black males, for whom both the firearm death rate and the firearm homicide rate more than doubled. The most recent increase, from 1987 to 1988, has been the largest single year increase in the firearm death rate for black male teenagers—35 percent (figure 6). Although the risk of firearm suicide is relatively low

(compared with homicide) among black males, the rate doubled from 1984 to 1988.

For white male teenagers, the firearm death rate increased by 22 percent from 1984 to 1988, by 18 percent for firearm homicides, and by 31 percent for firearm suicides.

From 1979 to 1985, the firearm death rate for persons 20-24 years of age decreased 17 percent. During the next 3 years, the rate increased 16 percent to 23.9 per 100,000 in 1988. For black males 20-24 years of age, the firearm death rate decreased 33 percent from 1980 to 1984, followed by a 59 percent increase between 1984 and 1988 to 119.2 firearm deaths per 100,000 population, the highest level since 1979 (although still lower than during the early 1970's). Nearly 9 in 10 firearm deaths among these black males were associated with homicides. Although relatively few firearm deaths were suicides, the death rate from this cause increased 46 percent from 1984 to 1988 to 12.3 deaths per 100,000 population (similar to the level in 1979).

For white males ages 20-24 years, the firearm death rate decreased from a high of 35.3 per 100,000 in 1980 to a low of 28.7 in 1983 and remained relatively unchanged at about 30 per 100,000 through 1988. The firearm homicide rate for this group was also relatively unchanged from 1983 to 1988; in 1988, the rate was 26 percent lower than the rate in 1980. The firearm suicide rate remained practically unchanged from 1979 to 1988 at about 17 per 100,000.

For white females ages 20-24 years, the firearm death rate decreased by 32 percent from 1979 to 1988. For black females, the firearm death rate decreased from 17.4 in 1979 to 10.3 in 1985, but then increased 35 percent to 13.9 per 100,000 in 1988.

From 1979 to 1988 at ages 25-29 years and 30-34 years, firearm mortality decreased by 12-14 percent. For these black males, firearm death rate decreased by about 35-40 percent from 1980 to 1985, paralleling the decline noted for black males 20-24 years of age. Since then, the rate for those aged 25-29 years has fluctuated

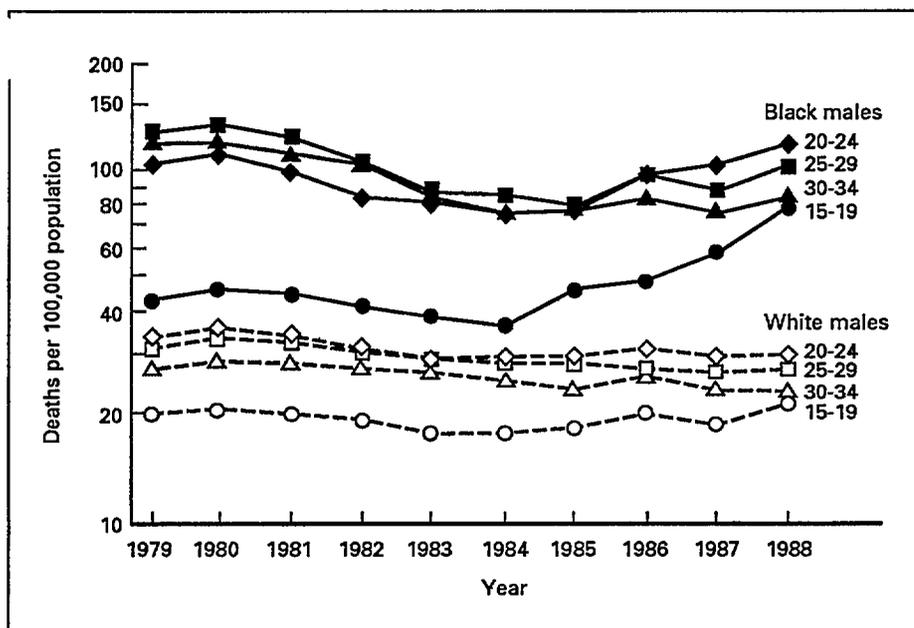


Figure 6. Firearm death rates by age, for white and black males aged 15-34 years: United States, 1979-88

widely, between 87 and 103 per 100,000, but has remained below the 1982 level. At ages 30-34 years, the rate has remained relatively stable in recent years. For this group, the firearm death rate in 1988 was 18 percent lower than in 1982.

Similar to the younger age groups for black males, firearm homicide rates for those 25-29 years of age and 30-34 years of age declined during the first half of the 1980's. However, unlike the rates for those 20-24 years of age, firearm homicide rates decreased between 1986 and 1987. In 1988, the rate for black males 25-29 years of age increased 22 percent to 89.5 per 100,000 (similar to the rate in 1982). For those 30-34 years of age, the 1988 rate was 10 percent higher than the year before (and similar to the rate in 1983).

From 1979 to 1988, firearm death rates for white males ages 25-29 years have been similar to or somewhat lower than rates for those 20-24 years of age (figure 6). Similarly, for white males ages 30-34 years, the trend in the firearm death rate was similar to that for the two younger age groups; however, the death rates were usually 10-15 percent lower than for those ages 25-29 years. In 1988, the firearm

death rates for white males 25-29 years of age and 30-34 years of age were 17-18 percent lower than in 1980.

Firearm suicide rates for white males 25-29 years of age and 30-34 years of age generally remained at about 15-16 and 14-15 per 100,000, respectively, from 1979-88. However, firearm homicide rates have decreased in both of these age groups by 30 and 35 percent, respectively, from 1980 to 1988.

The recent increases noted in firearm homicide mortality, especially among males 15-19 and 20-24 years of age, are not evident in nonfirearm homicide mortality. For males 15-19 years of age, the nonfirearm homicide rate averaged 10-11 per 100,000 for black teenagers and 2 per 100,000 for white teenagers during the period 1984-88. Also during this time, at ages 20-24 years, the rate for white males remained at 5 per 100,000 and for black males, at 21-25 per 100,000.

Nonfirearm suicide rates increased for white teenagers during the decade, paralleling the increase associated with firearms. For white male teenagers 15-19 years of age, the nonfirearm suicide rate increased 33 percent from 5.2 per 100,000 in 1983 to

6.9 per 100,000 in 1988. However, the firearm rate was about twice the nonfirearm rate.

For white female teenagers, the nonfirearm suicide rate in 1988 (2.5 per 100,000), although similar to the rate in 1987, was about twice what it was in 1982. For this group, the firearm suicide rate varied little between 1979 and 1988, ranging from 1.7 in 1979 to 2.3 in 1988.

## Summary

Firearm mortality among children 1-14 years of age has, with one exception, been relatively stable during the past decade. For black females 10-14 years of age, the firearm death rate more than doubled between 1987 and 1988. This increase accounted for about 30 percent of the increase in the death rate for all causes for this group of children. Among persons 25-34 years of age, firearm mortality decreased during the decade.

Among young persons 15-24 years of age, firearm mortality has increased substantially since 1984. In particular, the homicide rate associated with firearms for black males ages 15-19 years more than doubled by 1988. Further, for young black males ages 20-24 years, the firearm homicide rate in 1988 was 1.6 times what it was in 1984.

Thus, in 1988, firearms accounted for 20 percent of all deaths among young persons 15-24 years of age. Among black males ages 15-24 years, 44 percent of all deaths resulted from firearms. In 1988, there were 2.7 million black males ages 15-24 years in the United States; 2,700, or 1 out of every 1,000, died as a result of an incident involving a firearm.

## References

1. Fingerhut LA and Kleinman JC. Firearm mortality among children and youth. Advance data from vital and health statistics; no 178. Hyattsville, Maryland: National Center for Health Statistics. 1989.
2. Fingerhut LA and Kleinman JC. International and interstate comparisons of homicide among young males. JAMA 263(24):3292-5. 1990.

3. U.S. Department of Health and Human Services. Healthy People 2000 National Health Promotion and Disease Prevention Objectives. Washington: Public Health Service. 1990.
4. World Health Organization. Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, based on the recommendations of the Ninth Revision Conference, 1975. Geneva: World Health Organization. 1977.
5. National Center for Health Statistics. Advance report of final mortality statistics, 1988. Monthly vital statistics report; vol 39 no 7 supp. Hyattsville, Maryland: Public Health Service. 1990.

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#### Symbols

- - - Data not available
  - . . . Category not applicable
  - Quantity zero
  - 0.0 Quantity more than zero but less than 0.05
  - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
  - \* Figure does not meet standard of reliability or precision
-

Table 1. Death rates due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1979–88

[See Technical Notes for cause of death codes.]

Age, race, and sex	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Firearm deaths per 100,000 population										
1–4 years of age										
Total . . . . .	0.8	0.7	0.7	0.7	0.5	0.6	0.7	0.6	0.5	0.6
White males . . . . .	0.7	0.7	0.7	0.8	0.6	0.8	0.6	0.5	0.5	0.6
Black males . . . . .	2.5	2.1	2.3	2.1	0.8	0.8	2.2	1.8	1.5	1.8
White females . . . . .	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.3	0.3
Black females . . . . .	1.4	0.9	1.1	0.5	0.8	0.8	0.9	0.9	0.7	0.9
5–9 years of age										
Total . . . . .	0.9	0.8	0.8	0.9	0.7	0.8	0.7	0.6	0.7	0.7
White males . . . . .	1.1	1.0	0.9	1.1	0.8	0.9	0.9	0.7	0.9	0.7
Black males . . . . .	1.9	1.8	1.9	1.7	0.9	1.3	0.8	1.2	1.6	1.9
White females . . . . .	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.3	0.4	0.4
Black females . . . . .	1.3	0.7	0.8	0.8	0.7	0.9	1.2	1.3	0.6	0.9
10–14 years of age										
Total . . . . .	2.4	2.4	2.4	2.2	2.1	2.7	2.7	2.7	2.9	3.1
White males . . . . .	3.7	3.6	3.2	3.3	3.3	4.3	4.5	4.3	4.2	4.2
Black males . . . . .	4.5	4.7	6.0	3.5	3.9	3.7	4.7	4.8	6.8	7.8
White females . . . . .	0.9	1.0	1.0	1.1	0.7	1.1	1.0	1.0	1.1	1.1
Black females . . . . .	1.6	1.5	2.0	0.9	1.1	1.8	0.7	1.6	1.4	3.6
15–19 years of age										
Total . . . . .	14.0	14.5	14.3	13.5	12.4	12.4	13.3	14.5	14.7	17.7
White males . . . . .	20.0	20.7	20.1	19.4	17.7	17.8	18.5	20.2	18.9	21.7
Black males . . . . .	42.5	45.5	44.1	40.8	37.9	35.8	45.4	48.5	58.9	79.5
White females . . . . .	3.9	4.1	4.2	3.8	3.6	3.8	3.5	3.7	3.3	3.8
Black females . . . . .	8.6	7.5	7.6	6.4	5.9	6.2	6.0	7.8	9.0	8.4
20–24 years of age										
Total . . . . .	24.8	26.1	24.8	22.4	20.8	20.8	20.6	23.0	22.8	23.9
White males . . . . .	32.8	35.3	33.3	30.9	28.7	29.1	29.3	31.0	29.2	29.8
Black males . . . . .	103.3	111.3	98.6	83.2	79.4	74.8	75.7	95.4	103.9	119.2
White females . . . . .	6.6	6.1	6.6	6.4	5.6	6.1	5.3	5.7	5.2	4.5
Black females . . . . .	17.4	17.4	16.7	11.6	12.4	11.1	10.3	12.0	13.9	13.9
25–29 years of age										
Total . . . . .	24.5	25.9	25.2	23.1	21.0	20.3	20.2	21.0	20.2	21.6
White males . . . . .	30.8	33.1	32.3	30.4	28.5	28.0	27.8	27.0	26.4	27.1
Black males . . . . .	126.8	133.4	122.8	105.2	86.7	84.6	78.6	97.1	87.2	103.2
White females . . . . .	6.3	6.0	7.1	6.6	6.2	5.1	5.8	5.6	5.6	5.6
Black females . . . . .	17.3	19.2	15.8	13.4	12.3	13.2	13.1	14.5	14.6	16.0
30–34 years of age										
Total . . . . .	21.2	21.9	21.7	20.6	19.1	18.0	17.6	19.0	17.7	18.3
White males . . . . .	27.0	28.2	28.1	26.9	26.5	24.8	23.5	25.8	23.6	23.5
Black males . . . . .	118.8	117.4	111.4	102.5	82.3	75.2	76.3	82.3	75.7	84.3
White females . . . . .	5.5	6.0	6.1	5.7	5.4	5.5	5.5	5.3	5.3	5.2
Black females . . . . .	16.2	17.3	15.0	13.6	12.2	10.5	12.2	12.7	13.0	12.8
Firearm homicides per 100,000 population										
1–4 years of age										
Total . . . . .	0.3	0.4	0.4	0.4	0.2	0.4	0.4	0.4	0.3	0.3
White males . . . . .	0.2	0.4	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.3
Black males . . . . .	0.6	1.1	0.8	0.9	0.4	0.3	1.1	1.4	0.8	1.1
White females . . . . .	0.3	0.2	0.3	0.3	0.1	0.3	0.2	0.2	0.2	0.2
Black females . . . . .	1.0	0.7	0.6	0.5	0.6	0.6	0.7	0.6	0.7	0.6
5–9 years of age										
Total . . . . .	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.4
White males . . . . .	0.4	0.3	0.3	0.3	0.4	0.2	0.4	0.3	0.4	0.3
Black males . . . . .	0.9	0.9	1.0	0.8	0.5	0.9	0.5	0.6	0.7	1.1
White females . . . . .	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.2	0.3
Black females . . . . .	0.8	0.3	0.3	0.4	0.5	0.7	0.9	0.8	0.4	0.7
10–14 years of age										
Total . . . . .	0.6	0.8	0.8	0.7	0.6	0.8	0.8	0.9	1.0	1.1
White males . . . . .	0.7	0.7	0.6	0.6	0.6	0.9	0.9	1.0	0.8	0.8
Black males . . . . .	2.4	3.2	3.4	2.4	2.6	2.1	3.0	3.3	5.1	4.5
White females . . . . .	0.2	0.5	0.4	0.5	0.3	0.4	0.4	0.4	0.4	0.4
Black females . . . . .	1.0	1.0	1.5	0.6	0.6	1.4	0.6	0.9	1.1	2.5
15–19 years of age										
Total . . . . .	6.6	7.0	6.8	6.3	5.3	5.4	5.7	6.7	7.0	9.0
White males . . . . .	6.8	7.2	6.9	6.2	4.8	5.1	4.9	5.8	5.1	6.0
Black males . . . . .	34.8	38.4	37.5	34.8	31.7	29.6	36.4	41.0	49.2	67.9
White females . . . . .	1.7	1.7	1.6	1.4	1.4	1.5	1.2	1.5	1.2	1.3
Black females . . . . .	6.9	6.2	5.8	5.3	4.8	5.2	4.9	6.6	7.2	7.1

See footnote at end of table.

**Table 1. Death rates due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1979–88—Con.**

[See Technical Notes for cause of death codes.]

Age, race, and sex	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Firearm homicides per 100,000 population—Con.										
20–24 years of age										
Total	12.8	14.0	13.0	11.3	10.1	9.9	9.8	12.1	12.4	13.3
White males	12.6	13.8	12.7	11.1	9.8	9.6	9.7	10.9	10.1	10.2
Black males	86.3	95.3	84.6	71.6	66.6	63.4	62.5	82.9	90.6	103.6
White females	2.6	2.6	2.6	2.7	2.0	2.5	2.2	2.5	2.3	2.3
Black females	13.6	15.2	14.0	9.6	9.9	9.1	8.8	10.6	12.1	11.9
25–29 years of age										
Total	13.6	14.9	13.8	12.3	10.6	10.2	10.2	11.4	10.6	11.9
White males	12.7	14.1	13.0	11.8	10.6	10.1	10.0	10.2	9.7	9.9
Black males	107.9	115.2	106.4	89.9	72.4	69.6	66.6	82.8	73.5	89.5
White females	2.6	2.5	2.8	2.7	2.5	2.1	2.5	2.5	2.5	2.6
Black females	13.6	17.2	12.9	11.3	9.9	11.0	11.2	12.7	12.4	14.2
30–34 years of age										
Total	11.8	12.3	11.9	11.2	9.5	8.7	8.8	9.6	8.7	9.3
White males	11.5	12.6	11.7	10.9	9.7	8.7	8.3	9.4	8.0	8.2
Black males	100.2	99.3	96.0	88.9	68.2	61.7	63.2	69.7	62.8	69.1
White females	2.1	2.2	2.4	2.2	2.1	2.0	2.4	2.1	2.3	2.1
Black females	13.2	14.3	11.7	11.6	10.5	8.7	10.0	10.1	10.7	10.8
Firearm suicides per 100,000 population										
10–14 years of age										
Total	0.5	0.4	0.5	0.6	0.6	0.7	0.8	0.9	0.9	0.8
White males	0.6	0.7	0.8	1.0	1.0	1.1	1.5	1.5	1.7	1.2
Black males	0.1	0.2	0.1	0.7	0.3	0.2	0.4	0.8	0.5	0.7
White females	0.4	0.2	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Black females	—	0.1	—	0.2	0.3	0.2	—	0.2	0.1	0.4
15–19 years of age										
Total	5.3	5.4	5.5	5.5	5.4	5.3	6.0	6.2	6.1	6.9
White males	9.7	9.8	9.8	10.2	9.9	9.7	11.0	11.7	11.1	12.7
Black males	3.6	3.4	3.2	3.2	3.8	3.4	5.3	4.6	6.3	6.8
White females	1.7	1.9	2.2	2.1	2.0	1.9	2.0	1.9	1.9	2.3
Black females	1.1	0.6	1.2	0.3	0.7	0.8	0.7	1.0	1.3	0.9
20–24 years age										
Total	9.9	10.0	9.8	9.4	9.0	9.2	9.4	9.5	9.1	9.1
White males	16.9	18.0	17.4	17.0	16.1	17.0	17.1	17.7	16.8	17.2
Black males	12.5	11.4	10.1	8.4	9.4	8.4	10.7	10.0	10.2	12.3
White females	3.3	3.0	3.4	3.2	3.1	3.0	2.7	2.9	2.5	2.0
Black females	2.7	1.4	1.8	1.4	1.8	1.5	1.4	1.0	1.1	1.5
25–29 years of age										
Total	9.4	9.2	9.8	9.4	9.1	9.0	8.8	8.5	8.6	8.8
White males	15.8	16.1	16.7	16.4	16.0	15.8	15.9	15.0	15.2	15.9
Black males	14.3	13.1	12.6	11.5	9.5	12.5	9.8	11.5	11.8	10.7
White females	3.3	3.1	4.0	3.5	3.5	2.8	3.0	2.9	2.8	2.6
Black females	2.6	1.4	1.8	1.5	1.5	1.8	1.4	1.5	1.8	1.5
30–34 years of age										
Total	8.2	8.2	8.5	8.1	8.4	8.3	7.8	8.4	8.1	8.2
White males	13.7	13.6	14.6	13.9	15.1	14.7	13.7	14.9	14.3	14.0
Black males	13.6	13.2	11.6	9.9	11.5	10.3	10.5	10.6	10.8	13.6
White females	3.1	3.4	3.2	3.2	2.9	3.1	2.8	2.9	2.9	2.8
Black females	2.2	2.2	2.4	1.7	1.0	1.6	1.5	1.8	1.7	1.5
Unintentional firearm deaths per 100,000 population										
1–4 years of age										
Total	0.4	0.3	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.3
White males	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.3
Black males	1.9	0.9	1.3	1.0	0.5	0.6	1.0	0.5	0.7	0.7
White females	0.2	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1
Black females	0.3	0.2	0.5	—	0.2	0.2	0.2	0.4	0.1	0.3
5–9 years of age										
Total	0.5	0.5	0.4	0.5	0.3	0.4	0.3	0.3	0.4	0.3
White males	0.7	0.6	0.5	0.8	0.4	0.7	0.5	0.4	0.5	0.4
Black males	1.0	1.0	0.9	0.9	0.4	0.5	0.3	0.6	0.8	0.8
White females	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1
Black females	0.5	0.3	0.4	0.3	0.2	0.2	0.3	0.5	0.1	0.1
10–14 years of age										
Total	1.2	1.1	1.0	0.9	0.9	1.1	1.0	0.9	0.9	1.1
White males	2.3	1.9	1.7	1.6	1.6	2.1	2.0	1.7	1.6	1.8
Black males	1.6	1.3	2.2	0.4	0.9	1.1	1.2	0.6	1.1	2.1
White females	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3
Black females	0.4	0.3	0.4	0.2	0.2	0.2	0.1	0.4	0.2	0.6

See footnote at end of table.

Table 1. Death rates due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1979–88—Con.

[See Technical Notes for cause of death codes.]

Age, race, and sex	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Unintentional firearm deaths per 100,000 population—Con.										
15–19 years of age										
Total . . . . .	1.7	1.8	1.5	1.4	1.4	1.4	1.3	1.3	1.2	1.5
White males . . . . .	3.0	3.1	2.6	2.4	2.6	2.5	2.1	2.3	2.1	2.6
Black males . . . . .	2.9	2.9	2.6	2.3	1.9	2.3	3.2	2.1	2.9	3.4
White females . . . . .	0.3	0.4	0.3	0.1	0.2	0.3	0.2	0.3	0.1	0.2
Black females . . . . .	0.5	0.7	0.4	0.6	0.1	0.1	0.4	0.2	0.4	0.4
20–24 years of age										
Total . . . . .	1.5	1.5	1.5	1.3	1.3	1.2	1.1	1.0	1.1	1.0
White males . . . . .	2.4	2.6	2.6	2.1	2.2	1.9	2.0	1.7	1.8	1.8
Black males . . . . .	3.2	3.6	2.1	2.0	2.6	2.6	2.0	2.0	2.8	2.5
White females . . . . .	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1
Black females . . . . .	0.7	0.7	0.8	0.4	0.3	0.3	0.1	0.3	0.4	0.4
25–29 years of age										
Total . . . . .	1.1	1.2	1.1	1.1	0.9	0.9	0.8	0.7	0.7	0.6
White males . . . . .	1.7	1.9	1.8	1.7	1.3	1.5	1.4	1.2	1.2	0.9
Black males . . . . .	3.4	3.9	2.5	2.5	3.5	2.0	1.8	2.0	1.1	2.0
White females . . . . .	0.2	0.3	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.2
Black females . . . . .	0.7	0.4	0.8	0.4	0.6	0.4	0.3	0.1	0.3	0.1
30–34 years of age										
Total . . . . .	0.9	1.0	0.9	0.9	0.8	0.7	0.8	0.6	0.6	0.6
White males . . . . .	1.2	1.5	1.2	1.4	1.2	1.1	1.2	1.1	0.9	1.0
Black males . . . . .	4.1	3.9	2.4	2.7	2.3	2.6	1.9	1.4	1.9	1.1
White females . . . . .	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.1	0.2	0.1
Black females . . . . .	0.6	0.7	0.4	0.3	0.7	0.1	0.6	0.4	0.4	0.4
Nonfirearm homicides per 100,000 population										
1–4 years of age										
Total . . . . .	2.2	2.1	2.2	2.3	2.1	2.0	2.1	2.3	2.0	2.3
White males . . . . .	1.5	1.6	1.3	1.6	1.4	1.5	1.5	1.7	1.6	1.9
Black males . . . . .	5.7	6.1	8.1	7.7	6.9	4.7	5.4	8.0	4.0	6.4
White females . . . . .	1.4	1.3	1.5	1.4	1.1	1.3	1.4	1.1	1.3	1.4
Black females . . . . .	6.7	5.7	5.1	5.9	5.7	6.2	5.6	6.2	6.5	5.6
5–9 years of age										
Total . . . . .	0.6	0.6	0.6	0.7	0.5	0.6	0.6	0.5	0.5	0.6
White males . . . . .	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.3	0.5
Black males . . . . .	1.4	1.0	1.9	2.1	1.6	1.6	1.8	1.3	1.3	1.6
White females . . . . .	0.5	0.6	0.4	0.5	0.4	0.4	0.5	0.3	0.4	0.5
Black females . . . . .	1.4	1.7	1.5	1.6	0.9	2.3	1.4	1.8	1.2	1.2
10–14 years of age										
Total . . . . .	0.6	0.6	0.7	0.6	0.6	0.7	0.6	0.6	0.6	0.6
White males . . . . .	0.4	0.4	0.4	0.3	0.5	0.4	0.5	0.2	0.2	0.4
Black males . . . . .	1.6	0.7	1.9	1.4	1.4	1.8	1.1	1.3	1.7	1.2
White females . . . . .	0.6	0.7	0.7	0.6	0.5	0.8	0.5	0.6	0.5	0.4
Black females . . . . .	1.0	1.4	1.1	1.4	0.8	1.7	1.1	1.1	1.3	1.9
15–19 years of age										
Total . . . . .	3.6	3.6	3.3	3.5	3.2	2.9	2.9	3.3	2.9	2.7
White males . . . . .	3.7	3.7	3.1	2.9	2.8	2.4	2.4	2.9	2.2	2.0
Black males . . . . .	12.0	10.4	10.7	12.3	11.0	9.6	10.0	10.4	10.8	9.5
White females . . . . .	1.9	2.2	1.9	2.0	1.5	1.7	1.5	1.9	1.8	1.7
Black females . . . . .	5.2	4.8	5.0	5.9	5.7	4.9	5.4	5.6	4.8	4.4
20–24 years of age										
Total . . . . .	5.9	6.6	5.9	6.0	5.7	5.3	5.3	5.8	5.4	5.6
White males . . . . .	5.8	6.2	5.8	5.6	5.3	4.7	4.9	5.1	4.7	4.6
Black males . . . . .	24.8	29.6	26.0	26.2	25.6	21.1	23.7	24.8	22.0	24.6
White females . . . . .	2.4	2.8	2.4	2.6	2.3	2.7	2.1	2.7	2.4	2.4
Black females . . . . .	11.2	10.8	9.0	9.7	10.8	10.2	9.1	9.5	11.2	11.4
25–29 years of age										
Total . . . . .	5.9	6.2	6.0	6.0	5.8	5.7	5.4	6.0	5.7	5.6
White males . . . . .	4.8	5.8	5.6	5.3	5.2	5.0	4.8	5.0	4.5	4.2
Black males . . . . .	38.1	34.5	35.6	34.5	30.1	30.0	27.4	31.2	30.7	29.3
White females . . . . .	1.9	2.2	1.8	2.2	2.2	2.2	2.1	2.4	2.5	2.2
Black females . . . . .	11.0	10.9	10.6	10.9	10.4	10.9	9.7	11.4	11.2	13.7
30–34 years of age										
Total . . . . .	4.9	5.6	5.3	5.0	4.8	4.7	5.1	5.3	5.1	5.2
White males . . . . .	4.6	5.3	4.8	4.3	4.2	4.3	4.6	4.7	4.3	4.1
Black males . . . . .	33.7	40.1	34.9	35.4	33.1	30.5	31.5	31.5	30.5	29.1
White females . . . . .	1.4	1.7	1.5	1.4	1.4	1.5	1.7	1.8	1.9	2.0
Black females . . . . .	9.2	8.7	11.1	8.1	8.9	7.7	8.5	9.3	10.4	12.0

See footnote at end of table.

Table 1. Death rates due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1979–88—Con.

[See Technical Notes for cause of death codes.]

Age, race, and sex	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Nonfirearm suicides per 100,000 population										
10–14 years of age										
Total . . . . .	0.4	0.3	0.4	0.5	0.5	0.6	0.8	0.7	0.6	0.7
White males . . . . .	0.6	0.6	0.7	0.7	0.7	1.0	1.1	0.9	0.9	0.9
Black males . . . . .	0.1	0.3	0.1	0.8	0.6	0.8	0.8	0.8	1.1	0.6
White females . . . . .	0.2	0.1	0.2	0.2	0.2	0.2	0.5	0.4	0.3	0.4
Black females . . . . .	0.2	—	0.2	—	0.8	0.2	0.4	0.2	0.2	0.5
15–19 years of age										
Total . . . . .	3.1	3.1	3.2	3.2	3.3	3.7	3.9	4.0	4.2	4.4
White males . . . . .	4.6	5.2	5.1	5.3	5.2	6.1	6.3	6.5	6.6	6.9
Black males . . . . .	3.1	2.2	2.3	3.0	2.8	2.5	2.9	2.4	2.6	2.9
White females . . . . .	1.7	1.4	1.7	1.3	1.5	1.9	2.1	2.2	2.5	2.5
Black females . . . . .	1.1	1.0	0.4	1.2	1.0	0.9	0.9	1.1	1.4	1.3
20–24 years of age										
Total . . . . .	6.5	6.2	5.8	5.7	5.7	6.4	6.2	6.3	6.2	5.8
White males . . . . .	9.9	9.7	9.5	9.5	9.3	10.5	10.2	10.8	10.7	9.7
Black males . . . . .	9.9	8.6	7.1	7.7	7.3	8.3	7.8	6.0	7.0	7.5
White females . . . . .	3.2	2.9	2.5	2.2	2.4	2.5	2.5	2.4	2.2	2.4
Black females . . . . .	1.9	1.7	1.4	1.5	1.8	1.6	1.1	1.4	1.3	1.4
25–29 years of age										
Total . . . . .	7.8	7.3	7.3	7.3	6.9	6.7	6.6	7.0	6.7	6.6
White males . . . . .	11.7	11.4	10.9	11.1	10.7	10.6	10.5	11.4	10.8	10.5
Black males . . . . .	11.4	8.4	10.2	10.1	9.2	8.9	9.8	9.9	9.7	9.4
White females . . . . .	4.1	3.8	4.1	3.8	3.6	3.3	3.1	2.9	2.9	2.9
Black females . . . . .	2.8	2.1	2.5	1.9	1.4	1.7	1.3	1.8	2.0	2.2
30–34 years of age										
Total . . . . .	7.0	7.2	7.0	7.3	7.1	7.0	7.0	7.4	7.3	7.2
White males . . . . .	9.3	9.9	10.1	10.6	10.6	10.4	10.6	11.5	11.0	10.9
Black males . . . . .	10.2	8.9	8.8	8.8	8.1	9.7	9.2	10.5	10.0	10.6
White females . . . . .	5.0	4.7	4.2	4.5	4.4	4.1	3.9	3.8	4.1	3.7
Black females . . . . .	3.3	2.8	2.6	2.4	1.8	1.9	1.7	2.6	2.5	2.5

NOTE: Total includes races not shown separately.

**Table 2. Deaths due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age : United States, 1979–88**

[See Technical Notes for cause of death codes.]

Age, race, and sex	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
<b>All firearm deaths</b>										
<b>1–4 years of age</b>										
Total . . . . .	97	90	99	99	72	88	96	82	77	91
White males . . . . .	37	36	37	44	34	45	35	27	29	37
Black males . . . . .	24	20	23	22	9	9	24	20	17	20
White females . . . . .	21	24	25	24	21	25	26	21	19	20
Black females . . . . .	13	9	11	5	8	8	9	10	8	10
<b>5–9 years of age</b>										
Total . . . . .	157	131	123	142	108	124	120	110	126	124
White males . . . . .	78	70	60	76	52	61	61	52	64	53
Black males . . . . .	24	23	23	21	11	17	11	16	22	27
White females . . . . .	34	25	29	34	32	27	28	20	28	25
Black females . . . . .	16	9	9	10	9	11	16	17	8	12
<b>10–14 years of age</b>										
Total . . . . .	447	435	438	402	379	469	470	453	484	523
White males . . . . .	291	275	251	251	250	311	319	297	289	286
Black males . . . . .	61	64	80	47	54	50	63	63	90	104
White females . . . . .	67	71	75	83	53	74	70	64	72	72
Black females . . . . .	21	20	26	12	15	24	9	21	18	46
<b>15–19 years of age</b>										
Total . . . . .	2,997	3,077	2,913	2,674	2,392	2,334	2,475	2,693	2,705	3,226
White males . . . . .	1,824	1,868	1,735	1,624	1,426	1,401	1,434	1,570	1,448	1,634
Black males . . . . .	636	682	653	596	546	505	632	679	828	1,118
White females . . . . .	341	358	349	304	281	285	263	279	243	273
Black females . . . . .	129	113	112	93	84	87	83	108	125	116
<b>20–24 years of age</b>										
Total . . . . .	5,238	5,561	5,386	4,881	4,475	4,431	4,326	4,704	4,515	4,579
White males . . . . .	2,970	3,212	3,086	2,848	2,605	2,614	2,583	2,644	2,403	2,367
Black males . . . . .	1,330	1,457	1,352	1,174	1,082	1,023	1,036	1,295	1,386	1,556
White females . . . . .	586	549	598	576	504	538	458	479	425	351
Black females . . . . .	245	249	246	173	183	164	151	175	199	194
<b>25–29 years of age</b>										
Total . . . . .	4,666	5,062	5,053	4,779	4,422	4,364	4,394	4,619	4,444	4,725
White males . . . . .	2,534	2,771	2,773	2,685	2,550	2,566	2,572	2,522	2,461	2,500
Black males . . . . .	1,335	1,456	1,399	1,265	1,069	1,079	1,022	1,287	1,163	1,385
White females . . . . .	514	499	604	571	553	459	530	513	513	504
Black females . . . . .	208	239	204	180	171	188	190	213	215	238
<b>30–34 years of age</b>										
Total . . . . .	3,601	3,838	4,065	3,840	3,653	3,536	3,569	3,945	3,773	3,981
White males . . . . .	1,988	2,131	2,260	2,147	2,158	2,085	2,030	2,282	2,143	2,174
Black males . . . . .	990	1,028	1,072	1,025	847	810	855	957	920	1,059
White females . . . . .	407	453	495	452	438	455	472	457	476	472
Black females . . . . .	158	177	167	157	146	130	157	169	179	182
<b>Firearm homicides</b>										
<b>1–4 years of age</b>										
Total . . . . .	42	46	48	55	34	53	53	51	41	50
White males . . . . .	13	19	17	19	16	26	19	13	12	17
Black males . . . . .	6	11	8	10	4	3	12	15	9	12
White females . . . . .	13	9	16	18	8	18	13	14	12	12
Black females . . . . .	9	7	6	5	6	6	7	6	7	7
<b>5–9 years of age</b>										
Total . . . . .	67	49	55	58	60	55	58	52	55	71
White males . . . . .	28	22	22	23	25	14	25	21	26	20
Black males . . . . .	11	11	12	10	6	11	6	8	10	16
White females . . . . .	15	12	16	20	20	17	15	10	12	20
Black females . . . . .	10	4	4	5	6	9	12	10	5	10
<b>10–14 years of age</b>										
Total . . . . .	119	148	150	126	109	144	141	152	173	182
White males . . . . .	57	55	49	45	46	64	63	67	55	58
Black males . . . . .	33	43	46	32	35	29	40	43	67	60
White females . . . . .	13	34	33	36	18	26	26	29	28	25
Black females . . . . .	14	13	20	8	8	19	8	12	14	32
<b>15–19 years of age</b>										
Total . . . . .	1,416	1,487	1,394	1,245	1,028	1,022	1,064	1,250	1,297	1,641
White males . . . . .	620	650	595	521	384	400	382	447	392	453
Black males . . . . .	520	575	555	508	456	418	506	575	692	955
White females . . . . .	150	149	134	115	105	114	88	109	87	97
Black females . . . . .	104	94	86	77	68	73	68	91	100	98

See footnote at end of table.

Table 2. Deaths due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1979–88—Con.

[See Technical Notes for cause of death codes.]

Age, race, and sex	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Firearm homicides—Con.										
20–24 years of age										
Total	2,710	2,993	2,819	2,458	2,162	2,122	2,053	2,466	2,451	2,558
White males	1,139	1,253	1,176	1,020	888	863	852	931	836	809
Black males	1,111	1,247	1,160	1,010	907	867	855	1,126	1,209	1,352
White females	234	234	240	241	182	226	189	207	188	180
Black females	192	218	206	143	146	135	129	154	173	166
25–29 years of age										
Total	2,585	2,900	2,766	2,544	2,236	2,187	2,218	2,502	2,327	2,607
White males	1,041	1,178	1,115	1,041	945	928	924	954	900	916
Black males	1,136	1,257	1,212	1,081	893	888	867	1,097	980	1,201
White females	213	204	235	234	218	185	230	225	227	232
Black females	164	214	166	152	138	157	162	187	183	211
30–34 years of age										
Total	1,994	2,164	2,223	2,099	1,826	1,709	1,776	1,999	1,866	2,023
White males	845	955	942	872	794	731	713	828	724	763
Black males	835	870	924	889	702	665	709	811	763	868
White females	153	165	197	177	169	169	203	180	206	190
Black females	129	146	131	134	125	108	129	134	148	154
Firearm suicides										
10–14 years of age										
Total	84	78	91	113	103	115	139	141	151	125
White males	50	57	59	76	74	81	103	102	114	84
Black males	2	3	2	9	4	3	6	10	6	9
White females	31	16	28	24	18	28	28	23	27	23
Black females	—	2	—	2	4	2	—	3	1	5
15–19 years of age										
Total	1,136	1,134	1,120	1,094	1,046	997	1,117	1,151	1,129	1,261
White males	883	880	846	854	796	765	850	911	850	954
Black males	54	51	47	47	54	48	74	65	89	95
White females	151	165	180	168	156	145	150	138	141	163
Black females	16	9	18	5	10	11	9	14	18	13
20–24 years of age										
Total	2,080	2,122	2,127	2,045	1,935	1,970	1,964	1,946	1,793	1,754
White males	1,525	1,642	1,610	1,567	1,463	1,526	1,511	1,506	1,386	1,370
Black males	161	149	138	118	128	115	146	136	136	160
White females	297	270	305	288	275	264	234	244	206	154
Black females	38	20	26	21	27	22	20	14	16	21
25–29 years of age										
Total	1,789	1,799	1,970	1,940	1,911	1,928	1,918	1,880	1,900	1,918
White males	1,299	1,348	1,434	1,448	1,433	1,453	1,468	1,403	1,417	1,470
Black males	151	143	144	138	117	160	127	153	157	144
White females	273	254	338	301	309	255	270	265	253	239
Black females	31	17	23	20	21	25	21	22	26	23
30–34 years of age										
Total	1,392	1,436	1,602	1,512	1,612	1,639	1,591	1,747	1,729	1,788
White males	1,009	1,027	1,173	1,111	1,228	1,234	1,186	1,320	1,296	1,296
Black males	113	116	112	99	118	111	118	123	131	171
White females	229	257	259	256	232	254	241	249	254	258
Black females	21	22	27	20	12	20	19	24	23	21
Unintentional firearm deaths										
1–4 years of age										
Total	53	42	49	43	37	34	41	31	36	41
White males	23	16	20	25	17	19	15	14	17	20
Black males	18	9	13	11	5	6	11	5	8	8
White females	8	14	9	6	13	7	13	7	7	8
Black females	3	2	5	—	2	2	2	4	1	3
5–9 years of age										
Total	87	77	64	81	45	66	58	57	66	51
White males	47	44	35	51	26	45	33	30	35	32
Black males	13	12	11	11	5	6	4	8	11	11
White females	19	13	12	14	11	10	13	10	16	4
Black females	6	4	5	4	2	2	4	7	2	2
10–14 years of age										
Total	228	194	183	154	158	187	177	143	144	185
White males	178	150	132	123	124	150	145	115	111	123
Black males	22	18	30	5	12	15	16	8	15	28
White females	19	20	14	22	17	17	12	12	12	22
Black females	6	4	5	2	3	3	1	5	3	8

See footnote at end of table.

Table 2. Deaths due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1979–88—Con.

[See Technical Notes for cause of death codes.]

Age, race, and sex	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Unintentional firearm deaths—Con.										
15–19 years of age										
Total . . . . .	354	373	306	271	261	265	241	238	220	266
White males . . . . .	270	280	228	203	208	199	166	176	160	194
Black males . . . . .	43	44	38	34	28	33	45	30	41	48
White females . . . . .	25	35	25	12	14	20	17	25	11	11
Black females . . . . .	7	10	6	9	2	2	5	3	5	5
20–24 years of age										
Total . . . . .	314	329	324	272	283	250	238	205	213	200
White males . . . . .	216	235	237	195	200	168	175	148	148	146
Black males . . . . .	41	47	29	28	35	36	27	27	37	32
White females . . . . .	36	28	34	31	27	27	21	17	16	8
Black females . . . . .	10	10	12	6	4	5	2	4	5	5
25–29 years of age										
Total . . . . .	207	241	217	223	194	185	184	165	160	142
White males . . . . .	141	162	159	152	120	136	131	115	111	87
Black males . . . . .	36	43	29	30	43	26	23	26	15	27
White females . . . . .	16	23	16	28	17	13	18	15	22	19
Black females . . . . .	9	5	10	6	9	5	4	2	5	2
30–34 years of age										
Total . . . . .	151	174	162	163	153	144	155	134	131	122
White males . . . . .	90	113	100	115	94	91	101	98	85	88
Black males . . . . .	34	34	23	27	24	28	21	16	23	14
White females . . . . .	16	15	28	13	23	24	21	13	14	10
Black females . . . . .	6	7	4	3	8	1	8	5	5	6
Nonfirearm homicides										
1–4 years of age										
Total . . . . .	272	273	293	322	286	288	295	331	293	331
White males . . . . .	80	87	73	89	81	89	92	102	95	114
Black males . . . . .	54	59	82	82	73	51	58	87	44	72
White females . . . . .	71	66	82	77	61	75	80	65	76	78
Black females . . . . .	63	54	51	62	59	65	59	66	70	61
5–9 years of age										
Total . . . . .	98	104	101	108	84	100	109	82	86	108
White males . . . . .	30	28	28	28	27	21	24	17	21	36
Black males . . . . .	18	13	23	26	20	20	24	18	18	22
White females . . . . .	32	38	28	32	23	28	31	20	27	32
Black females . . . . .	17	21	18	19	11	29	18	24	16	16
10–14 years of age										
Total . . . . .	110	114	134	111	104	130	109	93	93	98
White males . . . . .	32	33	33	23	37	26	38	17	16	28
Black males . . . . .	22	10	25	19	19	25	15	17	22	16
White females . . . . .	43	50	55	46	35	54	37	42	35	28
Black females . . . . .	13	19	15	18	11	23	14	14	17	24
15–19 years of age										
Total . . . . .	775	766	677	692	614	542	538	612	541	494
White males . . . . .	337	336	269	245	227	187	185	223	171	153
Black males . . . . .	179	156	159	179	159	136	139	146	152	134
White females . . . . .	167	188	158	163	117	128	113	140	131	121
Black females . . . . .	78	72	74	85	82	69	74	77	66	61
20–24 years of age										
Total . . . . .	1,255	1,401	1,282	1,300	1,233	1,133	1,117	1,194	1,065	1,078
White males . . . . .	526	561	535	517	480	424	431	433	387	369
Black males . . . . .	319	387	357	369	348	289	325	337	293	321
White females . . . . .	217	255	217	235	210	238	187	226	192	191
Black females . . . . .	157	155	133	145	160	150	134	138	160	160
25–29 years of age										
Total . . . . .	1,130	1,217	1,200	1,240	1,217	1,227	1,167	1,311	1,255	1,227
White males . . . . .	398	482	482	467	463	460	448	467	418	386
Black males . . . . .	401	376	405	415	371	383	356	414	409	393
White females . . . . .	159	184	155	190	191	197	188	220	228	203
Black females . . . . .	132	136	136	146	145	155	141	167	165	204
30–34 years of age										
Total . . . . .	836	986	990	930	922	931	1,029	1,092	1,098	1,135
White males . . . . .	338	400	384	344	346	360	393	415	387	381
Black males . . . . .	281	351	336	354	341	328	353	366	370	365
White females . . . . .	101	128	123	113	111	122	146	155	170	178
Black females . . . . .	90	89	124	93	106	96	110	124	144	171

See footnote at end of table.

Table 2. Deaths due to firearms and nonfirearms by manner of death (homicide, suicide, and unintentional injury), by age, race, and sex for persons 1–34 years of age: United States, 1979–88—Con.

[See Technical Notes for cause of death codes.]

Age, race, and sex	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Nonfirearm suicides										
10–14 years of age										
Total . . . . .	67	61	72	85	92	110	136	109	99	112
White males . . . . .	44	49	51	57	55	71	77	64	59	62
Black males . . . . .	2	4	2	11	8	11	11	10	15	8
White females . . . . .	14	8	15	12	14	17	35	23	18	26
Black females . . . . .	3	—	2	—	11	3	5	2	3	7
15–19 years of age										
Total . . . . .	652	663	650	636	631	695	732	745	773	798
White males . . . . .	422	472	442	443	423	475	489	503	502	519
Black males . . . . .	46	33	34	44	40	35	40	34	36	41
White females . . . . .	146	118	139	108	116	143	154	164	186	183
Black females . . . . .	16	15	6	17	15	13	12	15	19	18
20–24 years of age										
Total . . . . .	1,378	1,320	1,264	1,250	1,233	1,364	1,308	1,278	1,229	1,116
White males . . . . .	897	887	877	873	848	947	903	921	879	775
Black males . . . . .	128	113	97	108	99	113	107	81	93	98
White females . . . . .	281	258	232	199	214	224	218	204	178	190
Black females . . . . .	27	25	21	23	26	23	16	21	18	19
25–29 years of age										
Total . . . . .	1,482	1,429	1,465	1,504	1,454	1,452	1,446	1,549	1,472	1,437
White males . . . . .	961	955	939	978	955	976	968	1,068	1,002	968
Black males . . . . .	120	92	116	122	113	113	127	131	129	126
White females . . . . .	332	319	345	333	319	295	279	268	268	263
Black females . . . . .	34	26	32	25	20	24	19	26	29	32
30–34 years of age										
Total . . . . .	1,194	1,256	1,306	1,360	1,361	1,373	1,421	1,535	1,554	1,567
White males . . . . .	682	752	815	845	867	874	913	1,016	995	1,012
Black males . . . . .	85	78	85	88	83	104	103	122	122	133
White females . . . . .	372	355	338	359	355	340	334	330	365	338
Black females . . . . .	32	29	29	28	21	24	22	34	35	31

NOTE: Total includes races not shown separately.

## Technical notes

### Nature and sources of data

Data shown in this report are based on information from all death certificates filed in the 50 States and the District of Columbia.

Mortality statistics are based on information coded by the National Center for Health Statistics (NCHS) from copies of the original death certificates received from the State registration offices, and on State-coded data provided to NCHS through the Vital Statistics Cooperative Program.

Data for the United States refer to events occurring within the United States.

### Cause-of-death classification

The mortality statistics presented in this report were compiled in accordance with the World Health Organization regulations, which specify that member nations classify causes of death by the current *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death* (4). In this report, causes of death for 1979–88 were classified according to the Ninth Revision of the ICD (ICD–9).

Homicides are classified according to ICD–9 Nos. E960–E969 (Homicide and injury purposely inflicted by other persons) and Nos. E970–E978 (Legal intervention). Homicides caused by firearms are classified under ICD9, Nos. E965.0–E965.4, Assault by firearms. Suicides are classified according to ICD–9 Nos. E950–E959. Suicides caused by firearms are classified under ICD–9 Nos. E955.0–E955.4. Unintentional firearm deaths are classified under ICD–9, No. E922 (Accident

caused by firearm missile). When it is undetermined whether injury deaths by firearms were accidentally or purposely inflicted the deaths are classified under ICD–9, Nos. E985.0–E985.4.

### Population bases for computing rates

The U.S. Bureau of the Census provided the populations used for computing rates shown in this report, which represent the population residing in the United States. The estimates are based on census counts, modified by race for 1980 and later years to be consistent with the U.S. Office of Management and Budget categories and historic categories for mortality data. Rates for 1984–88 are not strictly comparable with those of previous years because of new estimation procedures for net migration and net undocumented immigration. Population estimates are described in greater detail in the Technical Appendix of the Monthly Vital Statistics Report Advance Report of Final Mortality Statistics, 1988 (5).

### Random variation

Although the mortality data in this report (except data for 1972) are not subject to sampling error, they may be affected by random variation in the number of deaths involved. When the number of events is small (perhaps less than 100) and the probability of such an event is small, considerable caution must be observed in interpreting the data. Such infrequent events may be

assumed to follow a Poisson probability distribution. For this distribution, a simple approximation may be used to estimate the confidence interval, as follows:

If  $N$  is the number of registered deaths in the population and  $R$  is the corresponding rate, the chances are 19 in 20 (approximate 95-percent confidence interval) that

$$1. N - 2\sqrt{N} \text{ and } N + 2\sqrt{N}$$

cover the “true” number of events.

$$2. R - 2 \frac{R}{\sqrt{N}} \text{ and } R + 2 \frac{R}{\sqrt{N}}$$

cover the “true” rate.

If the rate  $R_1$  corresponding to  $N_1$  events is compared with the rate  $R_2$  corresponding to  $N_2$  events, the difference between the two rates may be regarded as statistically significant if it exceeds

$$2 \sqrt{\frac{R_1^2}{N_1} + \frac{R_2^2}{N_2}}$$

Additional information on random variation may be found in the Technical Appendix of *Vital Statistics of the United States*, 1987 Volume II, Mortality, Part A.

### Rates of change

Annual rates of change are represented by the slope of a least squares regression line through the logarithm of the annual rates.

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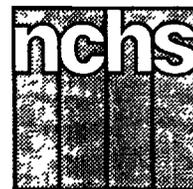
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# Monthly Vital Statistics Report



Final Data From the CENTERS FOR DISEASE CONTROL AND PREVENTION/National Center for Health Statistics

## Trends in Pregnancies and Pregnancy Rates: Estimates for the United States, 1980–92

by Stephanie J. Ventura, AM; Selma M. Taffel; William D. Mosher, Ph.D., Division of Vital Statistics; Jacqueline B. Wilson, MPH, Division of Health Interview Statistics; and Stanley Henshaw, Ph.D., Alan Guttmacher Institute

### Contents

Highlights.....	1
Introduction.....	2
Sources and methods.....	2
Trends.....	3
Rates in 1991.....	4
Outcomes in 1991–92.....	6
Factors associated with pregnancy rates.....	6
References.....	9
List of detailed tables.....	11
Technical notes.....	21

### Highlights

An estimated 6,484,000 pregnancies ended in 1992, 3 percent less than the number estimated in 1990 (6,668,000), when U.S. pregnancies were at the highest level since national estimates were first prepared in 1976. The number of pregnancies increased steadily from the mid-1970's to the early 1980's, and

then stabilized through 1987. Between 1987 and 1990, the number of pregnancies rose 8 percent, and then declined through 1992.

The pregnancy rate in 1992 was 109.9 pregnancies per 1,000 women aged 15–44 years, 3 percent lower than the 1990 peak, 113.8. Except for 1990, the pregnancy rate has ranged from 107 to 111 since 1980. Between 1980 and 1992, the number of women of reproductive age, defined as 15–44 years of age, increased 12 percent, while the number of pregnancies rose 10 percent. Thus, during this period, the changes in the number of pregnancies and the population at risk were roughly parallel.

Between 1980 and 1992, the rate for live births (also called the fertility rate) increased very slightly—by 1 percent—from 68.4 live births per 1,000 women aged 15–44 years in 1980 to 68.9 in 1992. The abortion rate declined 12 percent during this period, from 29.4 to 25.9. This decline reflects mainly the changes in age distribution of women in the child-

bearing ages. The proportion of the child-bearing population aged 18–29 years, the ages at which abortion rates are highest, declined from 47 to 39 percent. The fetal loss rate rose 7 percent, from 14.1 to 15.1. This increase also reflects the shifting age distribution of women of reproductive age, to ages at which fetal losses are relatively more likely.

As indicated, the pregnancy rate is the sum of three components, the live birth rate, the induced abortion rate, and the fetal loss rate. Although the net change in the pregnancy rate from 1980 to 1992 was very small, the rate declined by 5 percent from 1980 to 1986, and then rose by 7 percent from 1986 to 1990 before falling by 3 percent in 1992. Rates for the three components also declined from 1980 to 1986, with the largest decline measured for the abortion rate (7 percent). Between 1986 and 1990, the birth rate increased 8 percent and the fetal loss rate rose 11 percent, but the abortion rate did not change. Recently, between 1990 and 1992, the birth and fetal loss

### Acknowledgments

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National Center for Health Statistics



rates declined by 3 and 2 percent respectively, while the abortion rate fell 5 percent.

Pregnancy rates for Hispanic and black non-Hispanic women in 1991 were substantially higher than rates for white non-Hispanic women, 82 percent higher for Hispanic women and 90 percent higher for black non-Hispanic women. This disparity is observed among all age groups. The overall pregnancy rates for Hispanic and black non-Hispanic women were similar. However, rates by pregnancy outcome differed considerably. The birth rate for Hispanic women was much higher than the birth rate for black non-Hispanic women although the induced abortion rate was much higher for black non-Hispanic women.

Overall, about two-thirds of pregnancies among Hispanic and white non-Hispanic women ended in live births in 1991, compared with just half of pregnancies among black non-Hispanic women. The section "Factors associated with pregnancy rates" cites information on sexual activity and contraceptive use that helps to explain these findings.

## Introduction

Detailed national data on the number of live births and live birth rates, based on information derived from live birth certificates, are published annually by the National Center for Health Statistics (NCHS). There has been continued and growing interest in the total number of pregnancies and pregnancy rates in the United States. These data are not as readily available, however, because it is more difficult to assemble timely data on the remaining two types of pregnancy outcome, induced abortions and fetal losses.

This is the fourth in a series of reports that estimate the number of pregnancies and pregnancy rates by outcome, age, and race of the woman for the United States. The first of these studies covered the period 1976–81 (1), the second covered the period 1976–85 (2), and the third covered the period 1980–88 (3). Although data on pregnancies and pregnancy rates for 1976–92 are included in this report, information for 1976–79 is included principally for historical reference. The focus of this report is on

changes in the overall number of pregnancies and pregnancy rates and their components from 1980 to 1992, and on variations by age, race, and Hispanic origin for 1991, the most recent year for which detailed information on induced abortion is available. Estimates of pregnancy rates (exclusive of fetal losses) and birth and abortion rates for teenagers by State in 1980 and 1990 have been published (4).

## Sources and methods

The estimates of pregnancies in this report are the sum of the three outcomes, live birth, induced abortion, and fetal loss.

- The live birth data are not estimates. They are counts of all live births tabulated from the birth registration system, published annually by NCHS (5–8). More than 99 percent of births occurring in this country are registered (5).
- Estimates of the numbers and rates of induced abortions are derived from published and unpublished reports by the Centers for Disease Control and Prevention (CDC) and the Alan Guttmacher Institute (AGI) (9–12). The AGI estimates the national number of abortions from surveys it conducts of all known abortion providers (10). The AGI national estimates are distributed by age and race according to estimates prepared by CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP), based on reports from most State health departments (11,12). In 1991, for example, information on the age of abortion patients was available from 41 States, the District of Columbia, and New York City (12). States with no data or incomplete data, however, included California, Florida, and Illinois, which means that the characteristics of a large proportion of abortion patients are not known. Several other States have data that are known to be incomplete. The estimates shown here attempt to correct for these deficiencies in the abortion data. Detailed information on these estimates and the limitations of the data are provided in the Technical notes.

- Estimates of fetal loss rates are based on sample survey data from the 1982 and 1988 National Surveys of Family Growth (NSFG), conducted by NCHS (13,14). National samples of women aged 15–44 years were asked to report the dates and outcomes of each of their pregnancies, including spontaneous fetal losses from recognized pregnancies. Estimates of fetal loss rates for individual years are based on averages for the 5 years before the 1982 and 1988 surveys. (See Technical notes.) The rate of fetal loss is highest in the early weeks of gestation. Most fetal losses reported here therefore are miscarriages; relatively few are stillbirths occurring late in pregnancy. Because some women are not aware of their early fetal losses, the estimates in this report are estimates of fetal losses from recognized pregnancies. For women under the age of 15 years and for women aged 35 years and older, estimates of fetal loss are based on small numbers of sample cases and should, therefore, be interpreted with caution.

Data shown by age of woman refer to the age at outcome. Some studies of abortion have used age at conception (9).

Beginning in 1990, NCCDPHP has been obtaining information on the race and Hispanic origin of abortion patients from the State health departments. Therefore, pregnancies for 1990 and 1991 are shown for white non-Hispanic women, black non-Hispanic women, and Hispanic women separately. Prior to 1990, information on induced abortion was available only for white women and women of all other races combined. Trend data, therefore, are limited to the white and "All other" categories.

In 1991 the proportion of "All other" births that were to black women was 78 percent, compared with 84 percent in 1980. This reflects the growing proportions of American Indian and Asian or Pacific Islander births in the United States (8). Although comparable trend data are not available for induced abortions, the proportion of "All other" abortions that were to black women in 1991 was 88 percent.

In this report, the racial designation of all pregnancy outcomes is that of the

woman. Previous reports had tabulated live births according to the race of the child. In keeping with recent NCHS changes in tabulation of birth data by race, birth data for all years included in this report have been retabulated by race of mother (8,15).

Data are shown by age and race in the tables and figures. Race differentials primarily reflect differences in income, educational levels, and access to health care and health insurance. These are substantially lower for black and Hispanic women than for white women (16–19). (See Technical notes.) Other studies have shown that groups with low levels of income and education have higher birth rates than groups with higher levels of education and income (20,21). Statistics on abortion are not collected by education, income, occupation, or other socioeconomic indicators. Thus, pregnancy rates by these measures of socioeconomic status cannot be computed.

## Trends

There were an estimated 6,484,000 pregnancies that ended in 1992, the third highest number since national estimates were first prepared in 1976 (tables 1 and 2). The 1992 total was 3 percent lower than the peak number reported in 1990 (6,668,000), but still 30 percent higher than the number in 1976. Except for declines in 1983 and 1986, the number of pregnancies rose annually between 1976 and 1990.

Although the number of pregnancies was much higher in 1992 than in 1976, most of the increase is due to the 21 percent rise in the number of women in the childbearing ages; the pregnancy rate rose much less, by 7 percent (table 1) (22,23). Much of the population increase is attributable to the baby-boom generation. Women who were born in the peak birth years 1946–64 were aged 28–46 years in 1992. Because the number of births declined sharply beginning in the early 1970's, the number of teenagers and women currently in their early twenties is considerably smaller than the number from the baby-boom generation. Thus, the total population in the childbearing ages is projected to stabilize over the next several years with relatively fewer women in the age group 15–24 years, a

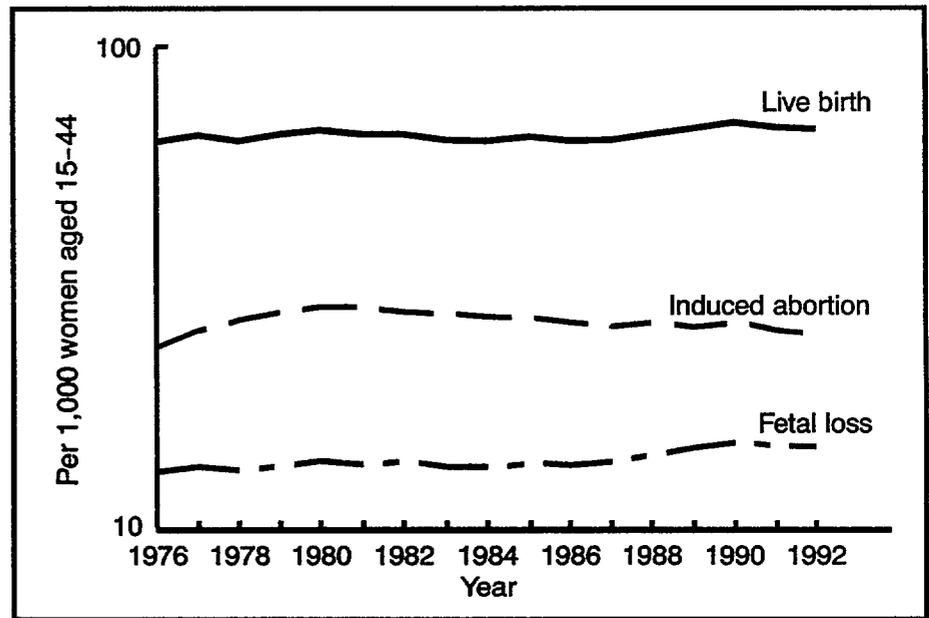


Figure 1. Estimated rates of live birth, induced abortion, and fetal loss: United States, 1976–92

factor that will likely exert a downward pressure on the number of pregnancies during the next several years (24).

The overall pregnancy rate in 1992 was 109.9 pregnancies per 1,000 women aged 15–44 years, 2 percent lower than the rate in 1980 (111.9). Although the net change in the pregnancy rate between 1980 and 1992 was very small, the rate declined by 5 percent from 1980 to 1986, and then rose 7 percent by 1990 before falling by 3 percent to 1992 (table 1 and figure 1). All components of pregnancy rates, i.e., live births, induced abortions, and fetal losses, declined from 1980 to 1986, but the decline was greatest for the abortion rate (7 percent). The birth rate fell 4 percent and the fetal loss rate declined 1 percent.

Between 1986 and 1990, when the pregnancy rate rose 7 percent, the birth rate increased 8 percent and the fetal loss rate rose 11 percent; the induced abortion rate did not change. In the most recent period, from 1990 to 1992, when the pregnancy rate declined 3 percent, all three components declined as well, with the birth and fetal loss rates dropping 3 and 2 percent, respectively, and the abortion rate falling 5 percent.

## Age

Pregnancy rates were higher in 1991 than in 1980 for all age groups. For

women in age groups 15–29 years, rates for 1991 were 2–5 percent higher than in 1980 (table 3). However, the increases were not continuous. Rates generally declined in each year for all age groups from 1980 to 1986. Between 1986 and 1990, however, rates increased for all groups, but most rapidly for women in their twenties (the ages at which pregnancy rates are highest) and women aged 30 years and older. Rates for women in their thirties were the only ones to rise almost continuously from 1980 to 1990. Pregnancy rates for almost all age groups in 1991 were lower than in 1990.

The changes in birth rates were very similar to those for the pregnancy rates, except that the overall increases in birth rates between 1986 and 1991 were considerably greater than for pregnancy rates for teenagers and for women in their late thirties and older. Much of the increase for women in their thirties is associated with the ongoing tendency for these women to make up for previously postponed childbearing (6,7,15,25).

Changes in induced abortion rates by age were very different from those in live birth rates. Rates for teenagers aged 15–19 years and women in their forties were lower in 1991 than in 1980. For teenagers, rates changed little from 1980 to 1987, increased in 1988, and then fell between 1988 and 1991 by 10–20 percent. For women in their forties, the rate

declined through 1986, and then increased to 1990 before declining again in 1991.

Abortion rates for women in age groups 20–39 years were higher in 1991 than in 1980. Rates for women aged 20–29 years also changed little during the period 1980–87; rates then rose between 1987 and 1990 but changed little in 1991. The abortion rates for women in their thirties rose almost continuously throughout the 1980's, more rapidly in the latter part of the decade, but then dropped in 1991.

The changes in the age distribution of women in the childbearing years is an important factor in the overall decline in the abortion rate during the 1980's. The proportion of all women aged 15–44 years who were in age groups 18–29 years, the ages at which abortion rates are highest, declined from 47 to 39 percent between 1980 and 1991 (22). Although the proportion of women aged 30–44 years increased from 42 to 52 percent and abortion rates for these women increased during this period, their rates are much lower, so they account for relatively few abortions, about 1 in 5 in 1991.

## Race

Pregnancy rates declined by 1 percent for white women and by 5 percent for women of all other races between 1980 and 1991. Rates for both groups declined from 1980 to 1986, by 4 to 8 percent and then increased by 6 and 5 percent, respectively, to 1990 before falling in 1991 (table 3). The trends in live birth rates by race were similar to those for pregnancy rates, except the increases since 1986 were greater for live births. The abortion rate for white women in 1991 was 17 percent lower than the rate in 1980, and the rate for all other women was 6 percent lower.

## Marital status

Pregnancy rates by marital status and race have been estimated for 1980 (26), 1990, and 1991, and are shown in table 4. Pregnancy rates, birth rates, and abortion rates for married women declined between 1980 and 1991, with the declines for pregnancy and birth rates slightly greater for all other married women than for white married women. In contrast, the

pregnancy and birth rates for unmarried women both increased, by 14 percent for the pregnancy rate and by 54 percent for the birth rate. The abortion rate declined. The increase in the birth rate for unmarried women was largely concentrated among white unmarried women, for whom the rate increased 91 percent (from 18.1 to 34.6). The relative decline in the abortion rate was more than twice as great for white as for all other unmarried women.

## Rates in 1991

### Age

The pregnancy rate for women aged 20–24 years has consistently been higher than for any other age group (table 3). In 1991 the rate was 193 pregnancies per 1,000 women aged 20–24 years. To put this another way, 19.3 percent of all women aged 20–24 years had a pregnancy ending in 1991. The rates for women aged 18–19 and 25–29 years were nearly as high: 171 per 1,000 for women aged 18–19 years (or 17.1 percent) and 174 per 1,000 women aged 25–29 years (equivalent to 17.4 percent). The rate for women aged 30–34 years was 118. Rates for other ages are considerably lower, ranging from 11 per 1,000 for women in their forties to 75 for young teens aged 15–17 years.

The patterns of rates by age differ for live births and induced abortions, with induced abortion rates having a younger age pattern than live birth rates. The birth rates were highest for women aged 20–24 and 25–29 years (116 and 118 per 1,000, respectively), while induced abortion rates were highest for women aged 18–19 and 20–24 years (56 and 57, respectively).

### Race and Hispanic origin

Data for Hispanic and white and black non-Hispanic women were available for the first time for 1990, and are shown separately for 1990 and 1991. However, the text focuses on variations in 1991. There are substantial differences in pregnancy rates and pregnancy outcomes among the three groups (tables 5 and 6 and figures 2 and 3). The overall pregnancy rates for Hispanic and black non-Hispanic women in 1991 were rela-

tively similar, 167 and 175 per 1,000, respectively, both substantially higher than the rate for white non-Hispanic women, 92 (table 5).

Although the pregnancy rates for black non-Hispanic and Hispanic women were similar, there were sharp differences between the two groups in the rates by pregnancy outcome (table 5 and figure 2). The birth rate for Hispanic women (108 per 1,000) was 23 percent higher than the rate for black non-Hispanic women (88 per 1,000). In contrast, the abortion rate for black non-Hispanic women (66 per 1,000) was nearly twice the rate for Hispanic women (36 per 1,000). In other words, black non-Hispanic and Hispanic women were about equally likely to become pregnant in 1991, but differed considerably in how their pregnancies were resolved, whether they ended as live births or induced abortions. Birth and abortion rates for white non-Hispanic women (61 and 18, respectively) were substantially lower than rates for either black non-Hispanic or Hispanic women.

The pregnancy rates for black non-Hispanic and Hispanic women were highest for women aged 20–24 years (table 5 and figure 3). The rate for black non-Hispanic women was 337 per 1,000 and the rate for Hispanic women was 286. In other words, one-third of black non-Hispanic women aged 20–24 years and more than one-quarter of Hispanic women of this age group had a pregnancy that ended in 1991. The highest rate for white non-Hispanic women was reported for ages 25–29 years, 155 per 1,000, followed closely by the rate for women aged 20–24 years, 151.

Pregnancy rates for women under 30 years of age were highest for black non-Hispanic women, while rates for women aged 30 years and older were highest for Hispanic women. The differential by race and Hispanic origin was greatest for teenagers under 15 and 15–17 years of age and declined with advancing age up to ages 30–34 years, and then increased for older ages.

Teen birth and abortion rates were highest for black non-Hispanic women. For women aged 20 years and older, birth rates were highest for Hispanic women, and abortion rates were highest for black non-Hispanic women.

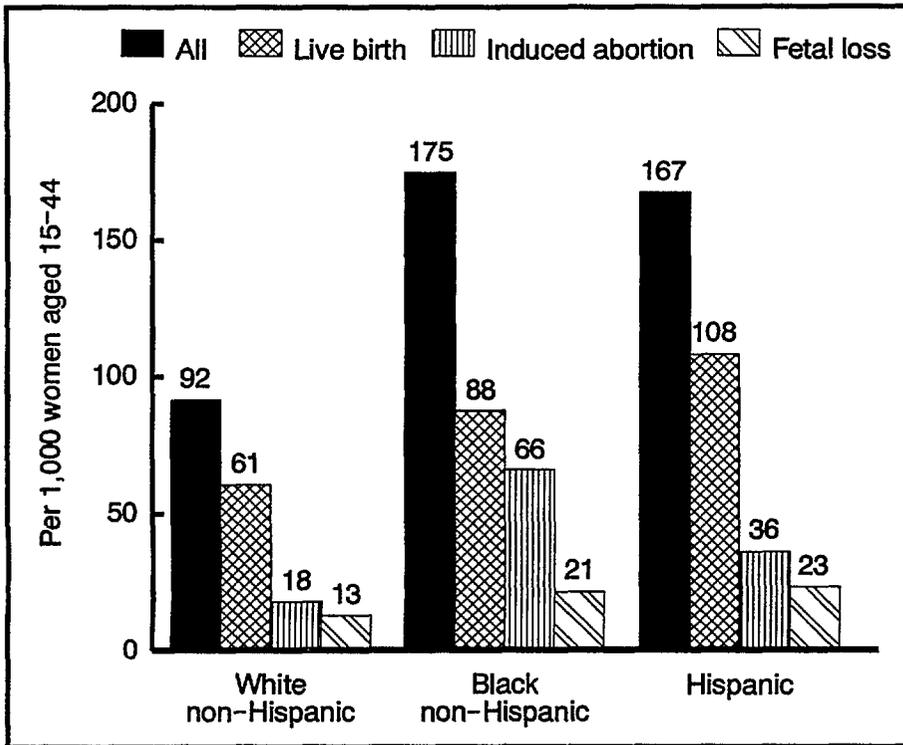


Figure 2. Estimated rates of pregnancy, live birth, induced abortion, and fetal loss by race and Hispanic origin of woman: United States, 1991

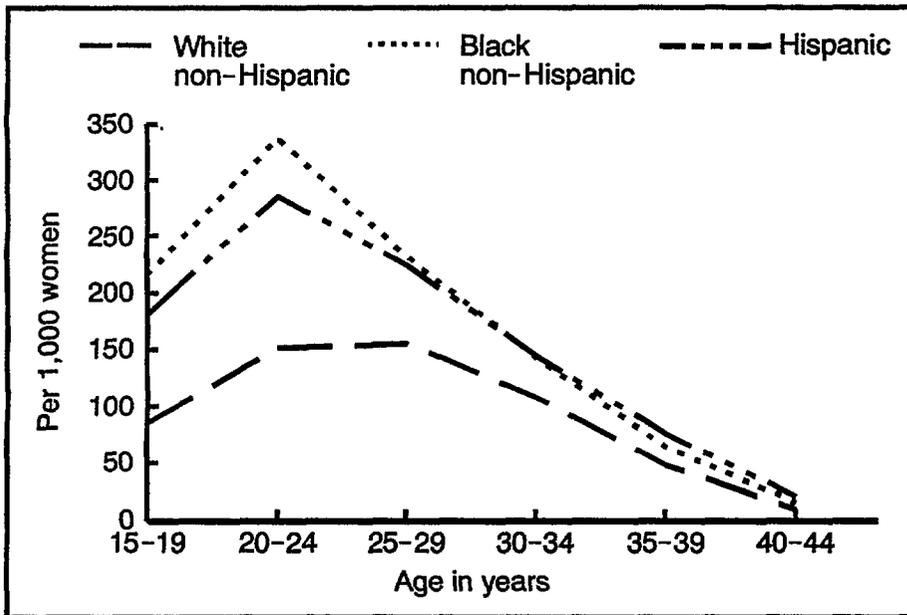


Figure 3. Estimated pregnancy rates by age, race, and Hispanic origin of woman: United States, 1991

**Marital status**

The pregnancy rate for married women was 118 per 1,000 in 1991, 15 percent higher than the rate for unmarried women, 103 (table 4). The birth rate

for married women was double that for unmarried women (90 compared with 45 per 1,000). In contrast, the abortion rate for unmarried women was about six times as high as for married women (48 compared with 8). The patterns of the

rates for white women were similar to those for women of all races, but the differential by marital status was greater. For example, the birth rate for married white women was 91 per 1,000, 2.6 times the rate for unmarried white women, 35.

Pregnancy rates for all other women differed considerably from those for white women (table 4). The rate for unmarried women of all other races was more than a third greater than the rate for married women, 174 per 1,000, compared with 128. In sharp contrast to the pattern for white women, the birth rate for married women of all other races was only 9 percent higher than the rate for unmarried women. The abortion rate for unmarried all other women (76 per 1,000) was nearly four times that for married women (21 per 1,000).

The birth rate for married women of all other races was slightly lower than for white women (86 and 91 per 1,000, respectively). However, the induced abortion rate for married all other women (21 per 1,000) was three times that for married white women (7 per 1,000).

The overall pregnancy rate for unmarried women of all other races (174 per 1,000) was more than double that of unmarried white women (81 per 1,000). This differential is reflected in sharply higher rates for both live births and induced abortions among all other women.

**Lifetime fertility**

The total fertility rate (TFR), is the average number of lifetime births that women would have if the age-specific birth rates in a given year continued through their reproductive years. The TFR has been published routinely by NCHS to suggest the implications of current age-specific birth rates for completed family size (5-8,15). By extension, a total abortion rate and a total fetal loss rate can also be calculated. Summing these rates would yield a total pregnancy rate, or the number of lifetime pregnancies per woman. (Method of computation is described in Technical notes.) The figures shown represent the average number of lifetime pregnancies, live births, and

induced abortions per woman implied by the 1991 age-specific rates for each group:

	Preg- nancies	Live births	Abor- tions
Total . . . . .	3.3	2.1	0.8
Non-Hispanic:			
White . . . . .	2.8	1.8	0.6
Black . . . . .	5.1	2.6	1.9
Hispanic . . . . .	4.7	3.0	1.0

On the average, given these assumptions, black non-Hispanic women would have slightly more than 5.0 pregnancies during their lifetimes, somewhat more than Hispanic women, 4.7; both groups would have substantially more pregnancies than white non-Hispanic women, 2.8. The differential in lifetime births is considerably smaller, and the number is highest for Hispanic women at 3.0 births per woman, compared with 2.6 for black non-Hispanic women and 1.8 births for white non-Hispanic women. The differential in lifetime abortions is larger: black non-Hispanic women would have 1.9 abortions each, compared with 1.0 for Hispanic women and 0.6 for white non-Hispanic women.

## Outcomes in 1991–92

Pregnancies in 1992 were slightly more likely to end as live births (63 percent) compared with 1980 (61 percent). There was a concurrent decline in the proportion ending in induced abortion, from 26 to 24 percent. These changes reflect the small increase in the birth rate (from 68 to 69 per 1,000), which occurred concurrently with the decline in the abortion rate (from 29 to 26) (table 1).

## Age

Consistent with the wide variations in birth and abortion rates by age, there are substantial differences in the distribution of pregnancy outcomes by age (figure 4). More than two-thirds of pregnancies among women aged 25–34 years ended as live births in 1991, the highest proportion of any age group. About half of the pregnancies among teenagers ended in live births. The proportions of pregnancies ending in induced abortion were highest for women under 25 years of age and aged 40 years and over (29–45 percent), and lowest for women aged 25–39 years (16–20 per-

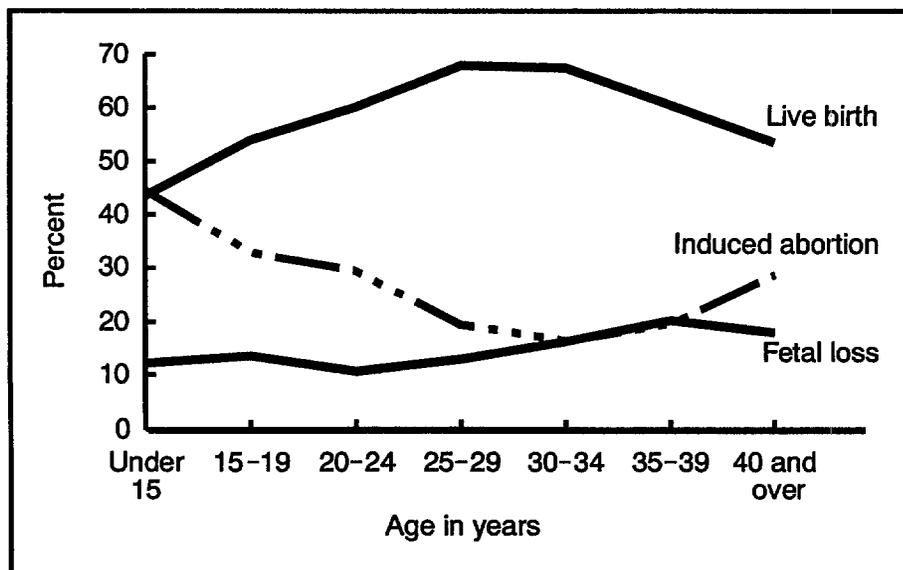


Figure 4. Percent of pregnancies ending as a live birth, induced abortion, or fetal loss, by age of woman: United States, 1991

cent). Generally, the proportions of pregnancies ending in fetal loss increased with advancing age. Among women in their thirties, pregnancies were equally likely to end in induced abortion or fetal loss.

## Race and Hispanic origin

As noted earlier, the substantial disparities in pregnancy rates and rates for each pregnancy outcome are reflected in the very different pregnancy outcomes for white non-Hispanic and Hispanic women compared with black non-Hispanic women. Overall, about two-thirds of pregnancies among white non-Hispanic women and Hispanic women ended as a live birth, one-fifth in induced abortion, and 14 percent in fetal loss (table 6). In contrast, about half of the pregnancies to black non-Hispanic women ended as live births, with 38 percent ending in induced abortion, and 12 percent ending in fetal loss (table 6).

Among pregnancies to women aged 20 years and older, the proportions ending in live birth were similar for Hispanic and white non-Hispanic women at each age, and similar to the pattern for all ages combined. The proportion ending in induced abortion was highest for black non-Hispanic women in each age group. There was little difference in fetal loss proportions by race and origin.

Among pregnancies to teenagers 15–19 years of age, there were considerable variations in the distributions of pregnancy outcomes by race and origin. The proportion ending in live birth was highest for Hispanic teenagers (57–61 percent), followed by black non-Hispanic teenagers (55 percent), and white non-Hispanic teenagers (46–54 percent). The proportions of pregnancies ending in induced abortion were similar for white non-Hispanic and black non-Hispanic teenagers (33–39 percent), but were much lower for Hispanic teenagers (20–24 percent).

## Factors associated with pregnancy rates

Information on trends in contraceptive use, the effectiveness of contraceptive use, patterns of marriage and divorce, sexual activity, and unwanted childbearing from the National Survey of Family Growth (NSFG), conducted by NCHS, can be used to help explain the trends and differences described in this report.

Data from NSFG have been used to calculate contraceptive failure rates, which show the probability of having an unintended pregnancy within the first year of use of a given contraceptive method (27). In this analysis, a contraceptive “failure” may result from the

failure of the method despite correct and consistent use, or more often, from incorrect or inconsistent use. For example, inconsistent use occurs if a woman forgets to take her oral contraceptive pills for 1 or more days, or if a condom or diaphragm was used at some but not all acts of intercourse. A previous report from the 1990 NSFG showed that, whether condoms are being used for contraception or for disease prevention, fewer than half of condom users use condoms at every act of intercourse in a given month (28).

NSFG data show that for women 15–44 years of age, the failure rate for the pill is 8 percent, and for the condom, 15 percent (27). Although a switch away from the pill to the condom would tend to reduce sexually transmitted diseases (STD), it would also tend to increase the pregnancy rate. According to the same analysis, the contraceptive failure rate for all contraceptive methods combined for teenagers in 12 months of use was 26 percent, compared with 18 percent at ages 20–24 years, 13 percent at ages 25–29 years, and 10 percent at ages 30 years and over.

### Trends

NSFG data show three principal trends in contraceptive use between 1982 and 1990: intrauterine device (IUD) use decreased when the IUD was withdrawn from the U.S. market by its principal distributors; use of female sterilization increased among women aged 25 years and over; and there was an increase in condom use among young and unmarried people from 1982 to 1990, in response to the concern about STD, including human immunodeficiency virus (HIV) (29).

The overall trend in pregnancy rates was driven primarily by trends in pregnancy for women under 30 years of age because, in 1991, women under 30 years of age accounted for about 70 percent of all pregnancies and live births in the United States. In general there were slight decreases in pregnancy rates for ages under 30 years from 1980 until the mid-1980's. But each of the rates increased between 1986 and 1991, to levels slightly higher than in 1980 (table 3). For example, the rate for teenagers aged 15–19 years was 110.0 in 1980, 104.7 in

1986, and 115.0 in 1991; the rate for women aged 20–24 years was 183.5 in 1980, 178.2 in 1986, and 192.6 in 1991.

A recent report showed changes in contraceptive use that shed light on the recent increases in pregnancy rates among young women (29). NSFG surveys were done in 1982, 1988, and 1990. These surveys show that between 1988 and 1990, the proportion of women 15–24 years of age who:

- had ever had intercourse increased from 70 to 74 percent;
- had intercourse in the last month while not using any contraceptive method and not intending pregnancy increased from 4 to 12 percent;
- were using oral contraceptive pills dropped from 30 to 24 percent; and
- were using the condom increased from 10 to 14 percent.

An increase in the proportion who ever had intercourse, an increase in the proportion who were currently having intercourse and not using any method of birth control, and a shift from oral contraceptive use to condom use would tend to increase the pregnancy rates among young women. That appears to be what happened in the late 1980's.

Increases in the pregnancy rates for women 30–34 and 35–39 years of age throughout the 1980's are reflected primarily in increasing birth rates at these ages (table 3). For example, the birth rate per 1,000 women aged 30–34 years was 61.9 in 1980 and 79.5 in 1991. These changes in birth rates to women in their thirties appear to be due to the continuation of a trend toward making up for previously delayed childbearing (25). The percent of women reaching age 35 years who were still childless increased from 15 percent in 1980 to 21 percent in 1991 (30,31). The increases in birth rates at ages 35–39 years are of interest because women aged 35 years and over are exposed to elevated risks of infertility (32), pregnancy loss (33), and cesarean delivery (34). Their use of infertility services and other expensive medical care may also be of public interest (35). Despite a sharp relative increase in birth rates at ages 35–39 years, births to women aged 35 years and over still accounted for only 9 percent of all births in 1991, up from 5 percent in 1980.

### Race and Hispanic origin

The differences in pregnancy rates between non-Hispanic white women and other women (table 5) are substantial. Overall, the pregnancy rate in 1991 was 92 per 1,000 non-Hispanic white women, compared with 167 per 1,000 Hispanic women and 175 per 1,000 non-Hispanic black women. These differences may be related to the following factors: Despite some convergence in the last two decades, non-Hispanic black women are still substantially more likely to begin intercourse before age 18 than Hispanic or non-Hispanic white women (36, 37); both Hispanic and black women are less likely to use a contraceptive method at their first intercourse than non-Hispanic white women (29, 38); and during contraceptive use, Hispanic women and non-Hispanic black women have higher rates of contraceptive failure than non-Hispanic white women (27). It is known that births to never-married women are much more likely to be unwanted than births to ever-married women. This was true for white and black women in both 1982 and 1988 (39). Black women spend fewer of their reproductive years as part of a married couple than white women (40), which may help to explain the higher rates of abortion and unwanted births among black women than among white women. There are several demographic reasons why black women spend fewer of their reproductive years in marriage than white women:

- On average, black women marry at later ages than white women. The average (mean) age at first marriage in 1988 was 26.0 years for black women and 23.9 years for white women (41).
- Black women are also less likely to have ever been married than white women. In 1988, 47 percent of black women and 67 percent of white women 15–44 years of age had ever been married (42).
- Among those who do marry, the marriages of black women were more likely to end in separation, divorce, or death. For example, 39 percent of black women's marriages had dissolved within 10 years compared with 28 percent of white women's marriages (42).

- Among those divorced, black women were much less likely than white women to remarry (40,42).

There are substantial differences by race and Hispanic origin in unwanted pregnancies and births. A pregnancy is defined as "unwanted" in the NSFG if, for example, a woman already had one child, and wanted no more, but became pregnant with her second; or if a woman had two children and did not want to have any more, but then became pregnant with her third child (43). Similarly, if a childless woman wants to remain childless permanently but becomes pregnant, then her first pregnancy would be unwanted. Whether a pregnancy is unwanted is defined at the time the pregnancy was conceived, and is designed to determine the number of pregnancies that would occur if contraceptive use was completely effective and each pregnancy was planned. Births that were unwanted at conception do not necessarily become unwanted children. Mothers who report a pregnancy as unwanted at the time of conception nonetheless may cherish the child born as a result of that pregnancy.

In 1983–88, 14.2 percent of births to Hispanic women, 29.8 percent of births to non-Hispanic black women, and 8.5 percent of births to non-Hispanic white women were unwanted. If it is assumed that these percents unwanted still applied in 1991, a 1991 wanted total fertility rate (TFR), expressed as wanted births per woman, can be computed by multiplying the TFR for 1991 by the proportion of births that were wanted as follows:

	1991 TFR	Percent wanted	Wanted TFR
Total . . . . .	2.1	87.6	1.8
NH White . . . . .	1.8	91.5	1.6
NH Black . . . . .	2.6	70.2	1.8
Hispanic . . . . .	3.0	85.8	2.6

Among non-Hispanic women, black women want about the same number of births as white women (1.8 compared with 1.6), but have substantially more births than white women (2.6 compared with 1.8 per woman). Thus, most of the difference in birth rates between non-Hispanic black and white women is due

to unwanted births. By contrast, the difference between Hispanic and non-Hispanic white women is primarily due to a difference in wanted births: Hispanic women want and have substantially more births than non-Hispanic white women.

These data show striking differences in marital patterns, contraceptive use, contraceptive effectiveness, unwanted births, and abortion rates among women of different racial and ethnic backgrounds. These differences reflect the relationships of race and ethnicity with education, occupation, access to health care (19,44), income (17,18), and the neighborhoods in which these groups live (45–48). These factors, in turn, affect many of the behaviors described above. It is beyond the scope of this report to discuss these issues in further detail, but they are clearly important to an understanding of the pregnancy and health patterns of minority women, and deserve further study—particularly the relationship of economic opportunities for both men and women to marriage and pregnancy patterns (38,45–48).

### Teenage pregnancy

The rate of teenage pregnancy can be broken into two parts: the rate of sexual activity, and the rate of pregnancy per 1,000 sexually experienced women. Thus, the teenage pregnancy rate can be calculated two ways: per 1,000 teenage women; and per 1,000 *sexually experienced* teenage women.

The table below shows that the rate of teenage pregnancy stayed about the same in the 1980–88 period, despite a sharp increase in the proportion having intercourse. The pregnancy rate per 1,000 sexually experienced teenage women dropped from 235 to 207, a 12-percent decrease. The pregnancy rate increased between 1988 and 1991 for all teenagers and for sexually experienced teenagers.

Rates of pregnancy per 1,000 women 15–19 years of age have been estimated for 1991 for Hispanic, non-Hispanic black, and non-Hispanic white women. Data on the percent who had ever had intercourse (sexual experience) for 1988 were used because the percent sexually experienced was virtually identical for white teenagers in 1988 and 1990, but the

sample size in 1990, particularly for Hispanic teenagers, was not large enough to produce reliable estimates. (See Technical notes for an explanation.)

The pregnancy rates per 1,000 sexually experienced teenaged women in 1991 are, then, estimates, but their pattern is striking. The rates for Hispanic and non-Hispanic black teenagers (379 and 357 pregnancies per 1,000 sexually experienced women, respectively) are substantially higher than the rate for non-Hispanic white teenagers (161 per 1,000).

Compared with non-Hispanic white teenagers, the differences in the overall teenage pregnancy rates (rates per 1,000 women aged 15–19 years) are associated with the higher rates of sexual experience (36,37) and less effective contraceptive use (29,36,38) among black teenagers. Among Hispanic teenagers, less effective contraceptive use (29,36,38) is the principal factor. Further studies of the factors affecting teenage sexual activity and contraceptive use would be helpful in understanding how these patterns can be changed.

As data on abortion are reported to CDC separately for black and Hispanic women over a period of years, it will be possible to determine with more certainty what the trends and levels in pregnancy rates are among black and Hispanic teenagers, and thus to state whether efforts to reduce teenage pregnancy are having their intended effect on Hispanic, non-Hispanic white, and non-Hispanic black teenagers.

	Preg- nancy rate per 1,000 women 15–19 years	Percent who ever had inter- course*	Preg- nancy rate per 1,000 sexually experi- enced
All races			
1980 . . . . .	110.0	46.9	235
1988 . . . . .	109.4	52.9	207
1991 . . . . .	115.0	54.9	209
Non-Hispanic white			
1991 . . . . .	84.7	52.7	161
Non-Hispanic black			
1991 . . . . .	216.7	60.7	357
Hispanic			
1991 . . . . .	180.2	47.5	379

\*The 1980 pregnancy rates use 1982 NSFG data on sexual activity because no NSFG was done in 1980. Rates for 1991 for all races combined are based on 1990 NSFG data. The 1991 rates by race and origin are based on 1988 NSFG data on sexual activity. See "Sexual experience" in Technical notes for explanation.

## Future research

National statistics of high quality on pregnancy are essential to adequately monitor U.S. fertility patterns. Increasing the completeness of abortion statistics reported to CDC, particularly by those States that do not currently report abortions at all or do not report the race, age, or Hispanic origin of the woman would be useful. Information on the educational attainment of women who have had abortions would be very helpful in interpreting differences among groups. In addition, further research to shed light on the connections between unwanted pregnancy and such characteristics as economic opportunities and access to family planning services and other health care is needed. Future Cycles of NSFG as well as the birth registration data can be useful in performing some of that research.

## References

- Ventura SJ, Taffel S, Mosher WD. Estimates of pregnancies and pregnancy rates for the United States, 1976-81. *Public Health Rep* 100(1):31-34. 1985.
- Ventura SJ, Taffel SM, Mosher WD. Estimates of pregnancies and pregnancy rates for the United States, 1976-85. *Am J Public Health* 78(5):506-11. 1988.
- Ventura SJ, Taffel SM, Mosher WD, Henshaw S. Trends in pregnancies and pregnancy rates, United States, 1980-88. *Monthly vital statistics report*; vol 41 no 6, supp. Hyattsville, Maryland: National Center for Health Statistics. 1992.
- Spitz AM, Ventura SJ, Koonin LM, et al. Surveillance for pregnancy and birth rates among teenagers, by State, United States, 1980 and 1990. In: *CDC Surveillance Summaries*, December 17, 1993. *MMWR* 1993; (No. SS-6):1-27.
- National Center for Health Statistics. *Vital statistics of the United States*, vol I, natality. Washington: Public Health Service. Annual issues, 1976-89.
- National Center for Health Statistics. *Advance report of final natality statistics*, 1990. *Monthly vital statistics report*; vol 41 no 9, supp. Hyattsville, Maryland: Public Health Service. 1993.
- National Center for Health Statistics. *Advance report of final natality statistics*, 1991. *Monthly vital statistics report*; vol 42 no 3, supp. Hyattsville, Maryland: Public Health Service. 1993.
- Ventura SJ, Martin JA, Taffel SM, et al. *Advance report of final natality statistics*, 1992. *Monthly vital statistics report*; vol 43, no 5, supp. Hyattsville, Maryland: National Center for Health Statistics. 1994.
- Henshaw SK, Van Vort J, eds. *Abortion factbook*, 1992 edition: Readings, trends, and State and local data to 1988. The Alan Guttmacher Institute. 1992.
- Henshaw SK, Van Vort J. *Abortion services in the United States*, 1991 and 1992. *Fam Plann Persp* 26(3):100-12. 1994.
- Centers for Disease Control and Prevention. *Abortion surveillance: Preliminary data—United States*, 1992. *MMWR* 43:930-39. 1994.
- Koonin LM, Smith JC, Ramick M. *Abortion surveillance—United States*, 1991. *CDC Surveillance Summaries*, May 1995. *MMWR* 1995; 44(No. SS-2):23-53.
- Judkins DR, Mosher WD, Botman S. *National Survey of Family Growth: Design, estimation, and inference*. National Center for Health Statistics. *Vital Health Stat* 2(109). 1991.
- Pratt WF, Mosher WD, Bachrach CA, Horn MC. *Understanding U.S. fertility: Findings from the National Survey of Family Growth, Cycle III*. *Popul Bull* 39(5). 1984.
- National Center for Health Statistics. *Advance report of final natality statistics*, 1989. *Monthly vital statistics report*; vol 40 no 8, supp. Hyattsville, Maryland: Public Health Service. 1991.
- U.S. Bureau of the Census. *Poverty in the United States: 1988 and 1989*. *Current population reports; series P-60*, no 171. Washington: U.S. Department of Commerce. 1991.
- Bennett CE. *The Black population in the United States: March 1990 and 1989*. U.S. Bureau of the Census. *Current population reports; series P-20*, no 448. Washington: U.S. Department of Commerce. 1991.
- Garcia JM, Montgomery PA. *The Hispanic population in the United States: March 1990*. U.S. Bureau of the Census. *Current population reports; series P-20*, no 449. Washington: U.S. Department of Commerce. 1991.
- National Center for Health Statistics. *Health, United States, 1993*. DHHS (PHS) 94-1232. Hyattsville, Maryland: Public Health Service. 1994.
- Lewis C, Ventura S. *Birth and fertility rates by education: 1980 and 1985*. National Center for Health Statistics. *Vital Health Stat* 21(49). 1990.
- Bachu A. *Fertility of American women: June 1992*. U.S. Bureau of the Census. *Current population reports; series P-20*, no 470. Washington: U.S. Department of Commerce. 1993.
- U.S. Bureau of the Census. *United States population estimates, by age, sex, race, and Hispanic origin: 1980 to 1991*. *Current population reports; series P-25*, no 1095. Washington: U.S. Department of Commerce. 1993.
- U.S. Bureau of the Census. *U.S. population estimates, by age, sex, race, and Hispanic origin: 1992*. *Census file RESPO792*. Washington: U.S. Department of Commerce. 1994.
- Day JC. *Population projections of the United States, by age, sex, race, and Hispanic origin: 1993 to 2050*. U.S. Bureau of the Census. *Current population reports; P-25-1104*. Washington: U.S. Department of Commerce. 1993.
- Ventura SJ. *Trends and variations in first births to older women, 1970-86*. National Center for Health Statistics. *Vital Health Stat* 21(47). 1989.
- Henshaw SK, Binkin NJ, Blaine E, Smith JC. *A portrait of American women who obtain abortions*. *Fam Plann Persp* 17(2):90-96. 1985.
- Jones EF, Forrest JD. *Contraceptive failure rates based on the 1988 NSFG*. *Fam Plann Persp* 24(1): 12-20, 1992.
- Mosher WD, Pratt WF. *AIDS-related behavior among women 15-44 years of age: United States, 1988 and 1990*. *Advance data from vital and health statistics; no 239*. Hyattsville, Maryland: National Center for Health Statistics. 1993.
- Peterson, LS. *Contraceptive use in the United States: 1982-90*. *Advance data from vital and health statistics; no 260*. Hyattsville, Maryland: National Center for Health Statistics. 1995.
- National Center for Health Statistics. *Vital Statistics of the United States, 1980, vol I, natality*. Washington: National Center for Health Statistics. 1984.
- National Center for Health Statistics. *Vital Statistics of the United States, 1991, vol I, natality*. In press.
- Mosher WD, Pratt WF. *Fecundity and Infertility in the United States, 1965-1988*. *Advance data from vital*

- and health statistics; no 192. Hyattsville, Maryland: National Center for Health Statistics. 1990.
33. Mosher WD, Pratt WF. Fecundity, infertility, and reproductive health in the United States, 1982. National Center for Health Statistics. *Vital Health Stat* 23(14). 1987.
34. Taffel SM. Cesarean delivery in the United States. 1990. National Center for Health Statistics. *Vital Health Stat* 21(51). 1994.
35. Chandra A, Mosher WD. The demography of infertility and the use of medical care for infertility. *Infertility and Reproductive Medicine Clinics of North America* 5(4):283-296, April 1994.
36. Forrest JD, Singh S. The sexual and reproductive behavior of American women, 1982-1988. *Fam Plann Persp* 22(5): 206-214. Sept-Oct 1990.
37. Family Growth Survey Branch. Premarital sexual experience among adolescent women—United States, 1970-1988. *MMWR* 39 (51-52):929-932. 1991.
38. Mosher WD, McNally, JW. Contraceptive use at first premarital intercourse: United States, 1965-1988. *Fam Plann Persp* 23(3):108-116. 1991.
39. Williams LB, Pratt WF. Wanted and unwanted childbearing in the United States: 1973-1988. Advance data from vital and health statistics; no 189. Hyattsville, Maryland: National Center for Health Statistics. 1990.
40. Bachrach CA, Horn MC. Married and unmarried couples. National Center for Health Statistics. *Vital Health Stat* 23(15). 1987.
41. National Center for Health Statistics. Advance report of final marriage statistics, 1988. Monthly vital statistics report; vol 40 no 4, supp. Hyattsville, Maryland: Public Health Service. 1991.
42. London KA. Cohabitation, marriage, marital dissolution, and remarriage: United States, 1988. Advance data from vital and health statistics; no 194. Hyattsville, Maryland: National Center for Health Statistics. 1991.
43. Piccinino LJ. Unintended Pregnancy and Childbearing, in Marks JS and Wilcox LS, editors, *From Data to Action: CDC's Public Health Surveillance for Women, Infants, and Children*. Centers for Disease Control and Prevention. 1994.
44. Ries P. Health care coverage by socio-demographic and health characteristics: United States, 1984. National Center for Health Statistics. *Vital Health Stat* 10(162). 1987.
45. Wilson WJ. *The truly disadvantaged: the inner city, the underclass, and public policy*. University of Chicago Press: Chicago. 1987.
46. Brewster KL. Neighborhood context and the transition to sexual activity among young black women. *Demography* 31(4):603-614. 1994.
47. Brewster KL. Race differences in sexual activity among adolescent women: the role of neighborhood characteristics. *American Sociological Review* 59:408-424. 1994.
48. Brooks-Gunn J, Duncan FJ, Klebanov PK, Sealander N. Do neighborhoods influence child and adolescent development? *American Journal of Sociology* 99(2):353-395. 1993.
49. Atrash HK, Lawson HW, Smith JC. Legal abortion in the United States: trends and mortality. *Contemp Ob Gyn* 35:58-69. 1990.
50. Koonin LM, Smith JC, Ramick M. Abortion surveillance—United States, 1990. *CDC Surveillance Summaries*, December 17, 1993. *MMWR* 1993; 42(No. SS-6):29-57.
51. Koonin LM, Smith JC, Ramick M, Lawson HW. Abortion surveillance, United States, 1989. In: *CDC Surveillance Summaries*, September 1992. *MMWR* 1992; 41(No. SS-5):1-33.
52. Ventura SJ. Births to unmarried mothers: United States, 1980-92. National Center for Health Statistics. *Vital Health Stat* 21(53). 1995.
53. Kochanek KD. Induced terminations of pregnancy: reporting States, 1988. Monthly vital statistics report, vol 39 no 12, supp. Hyattsville, Maryland: National Center for Health Statistics. 1991.

**List of detailed tables**

1. Estimated number of pregnancies and pregnancy rates, by outcome of pregnancy, and number of women: United States, 1976-92 . .	12
2. Estimated number of pregnancies by outcome of pregnancy, age, and race of woman: United States, 1976 and 1980-91 . . . . .	13
3. Estimated pregnancy rates by outcome of pregnancy and age and race of woman: United States, 1976 and 1980-91 . . . . .	15
4. Estimated pregnancy, live birth, and induced abortion rates by marital status and race: United States, 1980, 1990, and 1991 . . . . .	17
5. Estimated number of pregnancies and pregnancy rates by outcome of pregnancy by age, race, and Hispanic origin of woman: United States, 1990 and 1991 . . . . .	18
6. Estimated percent distribution of pregnancies by outcome of pregnancy, according to age, race, and Hispanic origin of woman: United States, 1990 and 1991 . . . . .	20

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**Symbols**

- Data not available
  - ... Category not applicable
  - Quantity zero
-

**Table 1. Estimated number of pregnancies and pregnancy rates, by outcome of pregnancy, and number of women: United States, 1976-92**

Year	All pregnancies				All pregnancies				Women aged 15-44 years
	Total	Live births	Induced abortions	Fetal losses <sup>1</sup>	Total	Live births	Induced abortions	Fetal losses <sup>1</sup>	
	Number in thousands				Rate per 1,000 women aged 15-44 years <sup>2</sup>				
1992	6,484	4,065	1,529	890	109.9	68.9	25.9	15.1	59,020
1991	6,563	4,111	1,557	896	111.1	69.6	26.3	15.2	59,079
1990	6,668	4,158	1,609	902	113.8	70.9	27.4	15.4	58,619
1989	6,480	4,041	1,567	873	111.0	69.2	26.8	15.0	58,367
1988	6,341	3,910	1,591	840	109.1	67.3	27.4	14.5	58,120
1987	6,183	3,809	1,559	815	106.8	65.8	26.9	14.1	57,901
1986	6,129	3,757	1,574	798	106.7	65.4	27.4	13.9	57,430
1985	6,144	3,761	1,589	795	108.3	66.3	28.0	14.0	56,716
1984	6,019	3,669	1,577	773	107.4	65.5	28.1	13.8	56,031
1983	5,977	3,639	1,575	763	108.0	65.7	28.5	13.8	55,359
1982	6,024	3,681	1,574	769	110.1	67.3	28.8	14.1	54,700
1981	5,958	3,629	1,577	751	110.5	67.3	29.3	13.9	53,926
1980	5,912	3,612	1,554	746	111.9	68.4	29.4	14.1	52,833
1979	5,714	3,494	1,498	722	109.9	67.2	28.8	13.9	52,016
1978	5,433	3,333	1,410	690	106.7	65.5	27.7	13.5	50,921
1977	5,331	3,327	1,317	687	107.0	66.8	26.4	13.8	49,814
1976	5,002	3,168	1,179	655	102.7	65.0	24.2	13.4	48,721

<sup>1</sup>Spontaneous fetal losses from recognized pregnancies of all gestational periods as reported by women in the 1982 and 1988 National Survey of Family Growth conducted by the National Center for Health Statistics. The rate of pregnancy loss depends on the degree to which losses at very early gestations are detected

<sup>2</sup>Rates computed by relating the number of events to women of all ages to women aged 15-44 years.

NOTE: Due to rounding, figures may not add to totals.

**Table 2. Estimated number of pregnancies by outcome of pregnancy, age, and race of woman: United States, 1976 and 1980-91**

Pregnancy outcome and year	Age of woman										Race	
	Total	15-19 years									White	All other
		Under 15 years	Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40 years and over		
Number in thousands												
<b>All pregnancies</b>												
1991	6,563	28	963	362	600	1,814	1,798	1,310	549	101	4,901	1,662
1990	6,668	27	1,002	369	632	1,818	1,878	1,315	532	96	5,013	1,655
1989	6,480	28	1,001	375	626	1,777	1,846	1,249	492	88	4,861	1,619
1988	6,341	27	988	389	599	1,775	1,820	1,195	456	79	4,770	1,571
1987	6,183	28	957	386	571	1,784	1,783	1,136	424	71	4,688	1,495
1986	6,129	29	984	385	579	1,828	1,765	1,081	399	62	4,683	1,446
1985	6,144	30	981	385	596	1,891	1,764	1,045	373	60	4,733	1,411
1984	6,019	30	983	378	605	1,894	1,718	993	343	58	4,657	1,362
1983	5,977	29	1,020	392	628	1,913	1,692	947	319	57	4,628	1,350
1982	6,024	27	1,058	405	653	1,970	1,695	919	298	56	4,682	1,341
1981	5,958	28	1,103	424	678	1,945	1,663	897	268	54	4,613	1,345
1980	5,912	29	1,146	446	699	1,956	1,626	844	258	54	4,585	1,328
1976	5,002	32	1,073	439	635	1,644	1,381	602	214	56	3,871	1,131
<b>Live births</b>												
1991	4,111	12	520	188	331	1,090	1,220	885	331	54	3,241	870
1990	4,158	12	522	183	338	1,094	1,277	886	318	50	3,290	868
1989	4,041	11	507	181	325	1,078	1,263	842	294	46	3,192	849
1988	3,910	11	478	177	302	1,067	1,239	804	270	41	3,102	807
1987	3,809	10	462	173	290	1,076	1,216	781	248	36	3,044	766
1986	3,757	10	462	169	293	1,102	1,200	721	230	31	3,019	737
1985	3,761	10	467	168	300	1,141	1,201	696	214	29	3,038	723
1984	3,669	10	470	167	303	1,142	1,166	658	198	28	2,967	702
1983	3,639	10	489	173	317	1,160	1,148	625	180	27	2,948	692
1982	3,681	10	514	181	333	1,206	1,152	605	168	26	2,985	696
1981	3,629	10	527	187	340	1,212	1,128	581	146	25	2,948	682
1980	3,612	10	562	198	354	1,226	1,108	550	141	24	2,936	676
1976	3,168	12	559	215	343	1,062	972	392	116	26	2,594	574
<b>Induced abortions</b>												
1991	1,557	12	314	118	196	533	348	213	107	29	962	574
1990	1,609	13	351	130	221	532	360	216	108	29	1,039	570
1989	1,567	13	371	139	232	509	345	203	99	26	1,006	561
1988	1,591	14	393	158	234	520	347	197	96	24	1,026	565
1987	1,569	14	382	161	221	518	337	192	93	23	1,017	542
1986	1,574	16	399	165	224	531	339	186	92	21	1,045	529
1985	1,589	17	399	166	234	548	336	181	87	21	1,076	513
1984	1,577	17	399	161	238	551	332	176	82	20	1,087	491
1983	1,575	16	411	166	245	548	328	172	78	21	1,084	491
1982	1,574	15	419	168	250	552	326	168	73	21	1,095	479
1981	1,577	15	433	176	257	555	316	167	70	21	1,108	470
1980	1,554	15	445	183	261	549	304	153	67	21	1,094	460
1976	1,179	16	363	153	210	392	221	110	57	21	785	394



**Table 3. Estimated pregnancy rates by outcome of pregnancy and age and race of woman: United States, 1976 and 1980-91**

[Rates per 1,000 women in specified group]

Pregnancy outcome and year	Age of woman										Race	
	Total <sup>1</sup>	Under 15 years <sup>2</sup>	15-19 years							40 years and over <sup>3</sup>	White	All other
			Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years			
<b>All pregnancies</b>												
1991	111.1	3.2	115.0	74.6	171.0	192.6	174.2	117.8	53.1	10.6	101.2	155.7
1990	113.8	3.3	115.0	75.5	165.6	193.6	176.8	119.9	53.1	10.7	104.0	158.7
1989	111.0	3.4	113.2	75.4	161.8	187.6	171.9	114.7	50.1	10.2	101.1	157.8
1988	109.1	3.4	109.4	74.0	158.7	183.2	167.9	111.2	47.5	9.6	99.2	156.3
1987	106.8	3.5	104.8	70.9	154.8	178.9	163.6	107.7	45.1	9.0	97.5	152.0
1986	106.7	3.6	104.7	69.8	157.1	178.2	161.6	105.0	42.4	8.5	97.9	150.6
1985	108.3	3.6	106.9	71.1	158.3	179.4	163.0	103.7	41.8	8.4	99.9	150.9
1984	107.4	3.5	105.8	70.4	154.4	177.2	160.2	101.1	40.1	8.3	99.3	149.4
1983	106.0	3.3	107.2	72.2	153.5	177.8	160.0	98.4	39.0	8.6	98.6	151.9
1982	110.1	3.1	107.8	72.1	155.7	182.4	163.4	97.3	37.6	8.8	101.7	154.9
1981	110.5	3.1	109.2	72.6	159.6	180.0	164.3	94.8	36.8	8.8	101.3	159.9
1980	111.9	3.2	110.0	73.2	162.2	183.5	165.7	95.0	36.4	9.1	102.4	164.4
1976	102.7	3.2	101.4	69.4	148.9	166.1	150.8	82.2	35.3	9.9	92.8	161.6
<b>Live births</b>												
1991	69.6	1.4	62.1	38.7	94.4	115.7	118.2	79.5	32.0	5.7	67.0	81.5
1990	70.9	1.4	59.9	37.5	88.6	116.5	120.2	80.8	31.7	5.6	68.3	83.2
1989	69.2	1.4	57.3	36.4	84.2	113.8	117.6	77.4	29.9	5.3	66.4	82.7
1988	67.3	1.3	53.0	33.6	79.9	110.2	114.4	74.8	28.1	5.0	64.5	80.3
1987	65.8	1.3	50.6	31.7	78.5	107.9	111.6	72.1	26.3	4.6	63.3	77.9
1986	65.4	1.3	50.2	30.5	79.6	107.4	109.8	70.1	24.4	4.2	63.1	76.8
1985	66.3	1.2	51.0	31.0	79.6	108.3	111.0	69.1	24.0	4.1	64.1	77.3
1984	65.5	1.2	50.6	31.0	77.4	106.8	106.7	67.0	22.9	4.0	63.2	77.0
1983	65.7	1.1	51.4	31.8	77.4	107.8	106.5	64.9	22.0	4.0	63.4	77.9
1982	67.3	1.1	52.4	32.3	79.4	111.6	111.0	64.1	21.2	4.1	64.8	80.3
1981	67.3	1.1	52.2	32.0	80.0	112.2	111.5	61.4	20.0	4.0	64.8	81.1
1980	68.4	1.1	53.0	32.5	82.1	115.1	112.9	61.9	19.8	4.1	65.6	83.7
1976	65.0	1.2	52.8	34.1	80.5	110.3	106.2	53.6	19.0	4.5	62.2	82.0
<b>Induced abortions</b>												
1991	26.3	1.4	37.6	24.3	55.9	56.6	33.7	19.1	10.4	3.0	20.3	53.8
1990	27.4	1.5	40.3	26.5	57.9	56.7	33.9	19.7	10.8	3.2	21.6	54.6
1989	26.8	1.6	42.0	28.0	60.0	53.8	32.2	18.6	10.1	3.0	20.9	54.7
1988	27.4	1.7	43.5	30.2	62.0	53.6	32.0	18.4	10.0	3.0	21.3	56.2
1987	26.9	1.8	41.8	29.6	59.8	52.0	31.0	18.2	9.9	2.9	21.2	55.1
1986	27.4	2.0	42.3	29.9	60.8	51.8	31.1	18.0	9.7	2.8	21.8	55.1
1985	28.0	2.0	43.5	30.6	62.0	52.0	31.1	17.9	9.7	2.9	22.7	54.9
1984	28.1	2.0	42.9	29.9	60.8	51.6	31.0	17.9	9.6	2.9	23.2	53.8
1983	28.5	1.9	43.2	30.7	59.9	50.9	31.0	17.8	9.5	3.2	23.3	55.2
1982	28.8	1.6	42.7	30.0	59.7	51.1	31.5	17.8	9.3	3.3	23.8	55.3
1981	29.3	1.7	42.9	30.1	60.6	51.4	31.3	17.7	9.5	3.4	24.3	55.8
1980	29.4	1.7	42.7	30.1	60.6	51.6	31.0	17.2	9.4	3.5	24.4	57.0
1976	24.2	1.6	34.3	24.2	49.3	39.6	24.1	15.0	9.3	3.7	18.8	56.3

**Table 3. Estimated pregnancy rates by outcome of pregnancy and age and race of woman: United States, 1976 and 1980-91—Con.**

[Rates per 1,000 women in specified group]

Pregnancy outcome and year	Age of woman										Race	
	Total <sup>1</sup>	Under 15 years <sup>2</sup>	15-19 years							40 years and over <sup>3</sup>	White	All other
			Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years			
<b>Fetal losses<sup>4</sup></b>												
1991	15.2	0.4	15.4	11.5	20.7	20.3	22.3	19.1	10.7	1.9	14.0	20.4
1990	15.4	0.4	14.8	11.5	19.0	20.4	22.7	19.4	10.6	1.9	14.2	20.8
1989	15.0	0.4	14.0	11.1	17.7	20.1	22.2	18.7	10.1	1.8	13.8	20.4
1988	14.5	0.4	13.0	10.2	16.8	19.4	21.5	18.1	9.4	1.7	13.4	19.8
1987	14.1	0.4	12.4	9.6	16.5	19.0	21.0	17.4	8.8	1.5	13.0	19.1
1986	13.9	0.4	12.3	9.3	16.7	19.0	20.7	16.9	8.2	1.4	12.9	18.7
1985	14.0	0.4	12.4	9.4	16.7	19.1	20.9	16.7	8.1	1.4	13.1	18.7
1984	13.8	0.4	12.3	9.5	16.2	18.9	20.5	16.2	7.7	1.4	12.9	18.6
1983	13.8	0.3	12.5	9.7	16.2	19.0	20.4	15.7	7.4	1.4	12.8	18.8
1982	14.1	0.3	12.7	9.8	16.7	19.7	20.9	15.5	7.1	1.4	13.1	19.3
1981	13.9	0.4	14.1	10.5	19.0	16.5	21.6	15.7	7.2	1.4	12.2	23.0
1980	14.1	0.4	14.3	10.6	19.5	16.9	21.8	15.8	7.2	1.5	12.4	23.7
1976	13.4	0.4	14.4	11.1	19.1	16.2	20.5	13.6	6.9	1.6	11.8	23.3

<sup>1</sup>Rates computed by relating the number of events to women of all ages to women aged 15-44 years.

<sup>2</sup>Rates computed by relating the number of events to women under 15 years to women aged 10-14 years.

<sup>3</sup>Rates computed by relating the number of events to women aged 40 years and over to women 40-44 years.

<sup>4</sup>Spontaneous fetal losses from recognized pregnancies of all gestational periods as reported by women in the 1982 and 1988 National Survey of Family Growth conducted by the National Center for Health Statistics. The rate of fetal loss depends on the degree to which losses at very early gestations are detected.

**Table 4. Estimated pregnancy, live birth, and induced abortion rates by marital status and race: United States, 1980, 1990, and 1991**

[Rates per 1,000 women aged 15–44 years in specified group]

Marital status and measure	All races			White			All other		
	1980	1990	1991	1980	1990	1991	1980	1990	1991
<b>Married</b>									
All pregnancies <sup>1</sup> . . . . .	126.9	121.9	117.6	124.4	120.7	116.1	145.3	129.7	127.6
Live birth . . . . .	97.0	93.2	89.9	97.5	94.1	90.6	93.5	87.4	85.6
Induced abortion. . . . .	10.5	8.8	8.4	8.6	7.1	6.6	24.7	20.4	20.6
<b>Unmarried</b>									
All pregnancies <sup>1</sup> . . . . .	90.8	103.6	103.3	68.9	81.0	80.9	179.7	177.4	174.3
Live birth . . . . .	29.4	43.8	45.2	18.1	32.9	34.6	75.2	79.7	78.8
Induced abortion. . . . .	54.4	49.8	47.8	47.4	41.3	39.1	82.7	77.7	75.8

<sup>1</sup>Includes pregnancies ending in fetal loss, not shown separately.

**Table 5. Estimated number of pregnancies and pregnancy rates, by outcome of pregnancy by age, race, and Hispanic origin of woman: United States, 1990 and 1991**

Pregnancy outcome and race and Hispanic origin	Age									
	Total <sup>1</sup>	Under 15 years <sup>2</sup>	15-19 years							40 years and over <sup>3</sup>
			Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	
1991										
Number in thousands										
Non-Hispanic										
White:										
All pregnancies . . . . .	3,964	8	489	172	318	1,007	1,145	884	368	63
Live births . . . . .	2,635	3	250	79	171	637	834	640	235	36
Induced abortions . . . . .	774	4	164	61	103	264	163	106	58	16
Fetal losses <sup>4</sup> . . . . .	556	1	75	32	43	107	148	138	76	11
Black:										
All pregnancies . . . . .	1,344	14	272	114	158	439	320	202	81	15
Live births . . . . .	673	6	149	63	86	216	160	98	37	6
Induced abortions . . . . .	507	7	101	40	61	178	119	67	29	7
Fetal losses <sup>4</sup> . . . . .	164	1	22	12	10	45	41	37	15	3
Hispanic <sup>5</sup>										
All pregnancies . . . . .	965	5	177	71	105	306	250	149	64	14
Live births . . . . .	623	2	105	41	64	199	170	100	39	8
Induced abortions . . . . .	208	1	40	14	26	73	50	28	13	4
Fetal losses <sup>4</sup> . . . . .	134	1	32	16	16	33	30	22	12	2
Rate per 1,000 women										
Non-Hispanic										
White:										
All pregnancies . . . . .	91.8	1.3	84.7	51.3	130.8	151.4	154.7	107.6	47.3	8.6
Live births . . . . .	61.0	0.5	43.4	23.6	70.5	95.7	112.7	77.9	30.2	4.8
Induced abortions . . . . .	17.9	0.7	28.4	18.1	42.6	39.6	22.0	12.9	7.4	2.2
Fetal losses <sup>4</sup> . . . . .	12.9	0.2	13.0	9.5	17.7	16.0	20.0	16.8	9.7	1.6
Black:										
All pregnancies . . . . .	174.8	11.0	216.7	157.5	297.9	337.2	232.3	142.7	63.9	14.4
Live births . . . . .	87.6	4.9	118.9	86.7	163.1	166.1	116.3	69.3	28.9	5.7
Induced abortions . . . . .	65.9	5.1	80.5	54.9	115.7	136.4	86.3	47.1	23.0	6.2
Fetal losses <sup>4</sup> . . . . .	21.3	0.9	17.2	15.8	19.1	34.7	29.7	26.3	12.1	2.4
Hispanic <sup>5</sup>										
All pregnancies . . . . .	167.4	4.8	180.2	123.9	261.3	285.6	224.3	143.9	74.8	19.8
Live births . . . . .	108.1	2.4	106.7	70.6	158.5	186.3	152.8	96.1	44.9	11.1
Induced abortions . . . . .	36.2	1.4	40.4	24.7	63.0	68.1	44.4	27.1	15.5	5.2
Fetal losses <sup>4</sup> . . . . .	23.2	1.0	33.1	28.5	39.8	31.2	27.1	20.7	14.4	3.6

Table 5. Estimated number of pregnancies and pregnancy rates, by outcome of pregnancy by age, race, and Hispanic origin of woman: United States, 1990 and 1991—Con.

Pregnancy outcome and race and Hispanic origin	Total <sup>1</sup>	Age								
		Under 15 years <sup>2</sup>	15-19 years			20-24 years	25-29 years	30-34 years	35-39 years	40 years and over <sup>3</sup>
			Total	15-17 years	18-19 years					
1990 Number in thousands										
Non-Hispanic										
White:										
All pregnancies . . . . .	4,123	8	532	181	351	1,039	1,227	897	359	61
Live births . . . . .	2,711	3	259	79	180	553	690	646	227	33
Induced abortions . . . . .	844	5	198	71	125	277	179	111	60	17
Fetal losses <sup>4</sup> . . . . .	568	1	77	32	45	109	158	139	73	11
Black:										
All pregnancies . . . . .	1,345	14	280	116	164	432	327	201	78	14
Live births . . . . .	674	6	150	62	88	214	165	98	35	6
Induced abortions . . . . .	507	7	108	42	65	173	119	66	29	6
Fetal losses <sup>4</sup> . . . . .	164	1	22	11	10	45	42	37	15	2
Hispanic <sup>5</sup>										
All pregnancies . . . . .	919	4	167	66	100	268	243	144	61	13
Live births . . . . .	597	2	96	37	61	190	167	96	38	7
Induced abortions . . . . .	195	1	38	14	24	67	46	27	12	3
Fetal losses <sup>4</sup> . . . . .	127	1	30	15	15	32	30	21	12	2
Rate per 1,000 women										
Non-Hispanic										
White:										
All pregnancies . . . . .	95.6	1.4	87.6	53.6	130.2	155.7	158.9	110.0	47.4	8.8
Live births . . . . .	62.8	0.5	42.6	23.3	66.9	97.9	115.3	79.2	29.9	4.8
Induced abortions . . . . .	19.6	0.2	32.3	21.0	46.5	41.5	23.1	13.7	7.9	2.4
Fetal losses <sup>4</sup> . . . . .	13.2	0.2	12.7	9.4	16.8	16.4	20.4	17.1	9.6	1.5
Black:										
All pregnancies . . . . .	177.6	11.4	216.5	159.0	293.4	332.8	234.0	144.3	64.0	14.5
Live births . . . . .	99.0	5.0	116.2	64.9	157.5	165.2	119.3	70.2	28.6	5.8
Induced abortions . . . . .	67.0	5.4	93.6	57.7	117.4	133.1	85.4	47.5	23.5	6.4
Fetal losses <sup>4</sup> . . . . .	21.6	0.9	16.6	15.5	18.5	34.6	30.2	26.6	11.9	2.4
Hispanic <sup>5</sup>										
All pregnancies . . . . .	165.7	4.5	170.3	116.7	244.1	274.5	222.4	146.5	75.2	20.3
Live births . . . . .	107.6	2.4	100.2	65.8	147.6	180.8	152.8	98.1	45.2	11.4
Induced abortions . . . . .	35.1	1.1	36.1	24.3	59.5	63.4	42.6	27.2	15.4	5.2
Fetal losses <sup>4</sup> . . . . .	23.0	1.0	31.0	26.6	37.0	30.3	27.1	21.2	14.6	3.7

<sup>1</sup>Rates computed by relating the number of events to women of all ages to women aged 15-44 years.

<sup>2</sup>Rates computed by relating the number of events to women under 15 years to women aged 10-14 years.

<sup>3</sup>Rates computed by relating the number of events to women aged 40 years and over to women aged 40-44 years.

<sup>4</sup>Spontaneous fetal losses from recognized pregnancies of all gestational periods as reported by women in the 1982 and 1990 National Survey of Family Growth conducted by the National Center for Health Statistics. The rate of pregnancy loss depends on the degree to which losses at very early gestations are detected.

<sup>5</sup>Persons of Hispanic origin may be of any race.

NOTE: Due to rounding, figures may not add to totals.

**Table 6. Estimated percent distribution of pregnancies by outcome of pregnancy, according to age, race, and Hispanic origin of woman: United States, 1990 and 1991**

Pregnancy outcome and race and Hispanic origin	Age									
	Total	15-19 years								
		Under 15 years	Total	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40 years and over
1991										
Non-Hispanic										
White:										
All pregnancies . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Live births . . . . .	66.5	35.4	51.2	46.1	53.9	63.2	72.9	72.4	63.8	56.3
Induced abortions . . . . .	19.5	50.3	33.5	35.3	32.5	26.2	14.2	12.0	15.6	25.5
Fetal losses . . . . .	14.0	14.3	15.3	18.6	13.5	10.6	12.9	15.6	20.5	18.1
Black:										
All pregnancies . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Live births . . . . .	50.1	45.0	54.9	55.1	54.7	49.2	50.1	48.6	45.2	40.0
Induced abortions . . . . .	37.7	46.7	37.2	34.9	38.8	40.5	37.1	33.0	36.0	43.3
Fetal losses . . . . .	12.2	8.2	8.0	10.1	6.4	10.3	12.8	18.4	18.9	16.7
Hispanic <sup>1</sup>										
All pregnancies . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Live births . . . . .	64.6	50.5	59.2	57.0	60.7	65.2	68.1	66.8	60.0	56.0
Induced abortions . . . . .	21.6	29.1	22.4	20.0	24.1	23.8	19.8	18.8	20.7	26.0
Fetal losses . . . . .	13.8	20.4	18.4	23.0	15.2	10.9	12.1	14.4	19.3	18.0
1990										
Non-Hispanic										
White:										
All pregnancies . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Live births . . . . .	65.7	32.4	48.7	43.4	51.4	62.8	72.6	72.0	63.1	54.9
Induced abortions . . . . .	20.5	54.5	36.9	39.1	35.7	26.6	14.6	12.4	16.6	27.4
Fetal losses . . . . .	13.8	13.1	14.5	17.5	12.9	10.5	12.9	15.5	20.3	17.7
Black:										
All pregnancies . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Live births . . . . .	50.1	44.3	53.7	53.7	53.7	49.6	50.6	48.6	44.7	39.6
Induced abortions . . . . .	37.7	47.5	38.6	36.6	40.0	40.0	36.5	32.9	36.6	43.8
Fetal losses . . . . .	12.2	8.1	7.8	9.8	6.3	10.4	12.9	18.4	18.7	16.5
Hispanic <sup>1</sup>										
All pregnancies . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Live births . . . . .	64.9	53.4	58.9	56.4	60.5	65.9	68.7	67.0	60.1	56.3
Induced abortions . . . . .	21.2	25.0	23.0	20.8	24.4	23.1	19.2	18.6	20.5	25.6
Fetal losses . . . . .	13.9	21.6	18.2	22.8	15.2	11.0	12.2	14.5	19.4	18.1

<sup>1</sup>Persons of Hispanic origin may be of any race.

NOTE: Based on unrounded frequencies.

## Technical notes

### Sources of data

**Live births**—Beginning in 1985, all live birth data are based on 100 percent of the births registered in the United States; for 1976–84, birth data are based on 100 percent of the births in selected States and on a 50-percent sample of births in all other States (5–8).

**Induced abortions**—Abortion data shown in this report are national estimates compiled by the Alan Guttmacher Institute (AGI) from their surveys of all known abortion providers, which are distributed by age and race according to estimates prepared by the National Center for Chronic Disease Prevention and Health Promotion of the Centers for Disease Control and Prevention (CDC). The CDC percent distributions have been adjusted to remove the influence of year-to-year changes in the States that report to CDC (9). The numbers of abortions published by CDC, which are obtained from State health agencies, tend to be lower than the numbers published by AGI, which are obtained by direct surveys of abortion providers (49). For example, the total number of abortions reported by CDC was about 14 percent lower in 1988 and about 11 percent lower in 1992 than reported by AGI (10,11).

It appears that the differential between the total counts reported by AGI and CDC has declined in recent years. Based on an analysis of changes in the data sets, it appears that the trend in the CDC data has been affected by better reporting in most of the States. In addition, because abortion services are increasingly concentrated among specialized abortion clinics and there are fewer total providers, the data may be more complete.

Estimates of the number of abortions performed in the United States in 1989 and 1990 were made by interpolation between AGI's 1988 and 1991 totals, because AGI did not conduct surveys in 1989–90. The method of interpolation took into account trends in the number of abortions reported by CDC for 1989 and 1990 (10,50,51). The CDC totals that were used excluded States with inconsistent reporting in comparison with AGI's State totals for the years 1985, 1987, and

1988. For each of these years for each State, the percentage difference between the CDC total and the AGI total was calculated. If the difference varied by more than 10 percentage points, the State was omitted. Sixteen States were omitted from the calculations on the basis of this criterion. In addition, California was omitted because the CDC numbers are estimates rather than actual counts. Kentucky and Maine were included in spite of inconsistent past reporting because they had made major improvements in their reporting systems, making their data relatively reliable.

For the 4 years, 1988–91, the consistent States in the CDC data and AGI data were each summed and compared. From these totals, U.S. estimates for 1989 were calculated in two ways: the ratio of the CDC total for 1989 to that for 1988 was multiplied by the AGI 1988 total; and the ratio of the CDC total for 1989 to that for 1991 was multiplied by the AGI 1991 total. The final estimate for 1989 is the weighted average of these two estimates, the weights being two-thirds of the first estimate and one-third for the second. The estimate for 1990 was similar but the weights were reversed, with the estimate based on 1988 weighted one-third, and that based on 1991 weighted two-thirds.

National estimates of induced abortions by marital status and race for 1980 have been published (26). Estimates for 1990 are based on abortion data for 34 States and New York City, and for 1991, based on abortion data for 36 States, the District of Columbia, and New York City (12,50), adjusted to U.S. totals compiled by the Alan Guttmacher Institute.

**Fetal losses**—Information on fetal losses is based on the 1982 and 1988 National Survey of Family Growth (NSFG). In this report, the proportion of pregnancies (excluding induced abortions) ending in fetal loss in the 5 years preceding the two surveys are used. To increase the reliability of the estimates by age and race, the proportions of pregnancies ending in fetal loss for both survey years were averaged and used for 1982–88. Although the number of fetal losses by age were reported in the 1990 NSFG Telephone Reinterview, the numbers were too small to make reliable estimates of fetal loss rates by age and race. Therefore, the average of the 1982

and 1988 proportions were also used for 1989–92. Fetal losses for years prior to 1982 were based on the 1982 NSFG.

NSFG data on fetal losses, rather than registration data, have been used in this report because registration data are generally limited to losses occurring at gestations of 20 weeks or more, whereas NSFG data include all gestations. When NSFG data and registration data on late fetal deaths are compared, the numbers are generally similar in both data sets.

### Population denominators

The numbers of women by age, race, and Hispanic origin used to compute rates are revised estimates which are consistent with 1990 census levels. These revised populations have been published in the U.S. Bureau of the Census reports (22,23). Populations by marital status are those prepared by the Division of Vital Statistics to produce birth rates by marital status (52.)

### Race and Hispanic origin

**Sources of data**—Birth data by Hispanic origin are based on information reported on the birth certificates of 48 States and the District of Columbia in 1990 and 49 States and the District of Columbia in 1991. Hispanic origin was not reported by New Hampshire and Oklahoma in 1990 and not reported by New Hampshire in 1991. In calculating rates, it is assumed that there were no Hispanic births in New Hampshire in 1990 and 1991. Rates for 1990 by Hispanic origin in this report include an estimate for Hispanic births to Oklahoma residents, which assumes proportionately the same level of Hispanic births by age in 1990 as were reported in 1991, when this information became available.

Births for white non-Hispanic women in 1991 include all white births in New Hampshire, and births for black non-Hispanic women include all black births in New Hampshire. In computing rates, births for white and black non-Hispanic women also include all white and black births with origin not stated in the total reporting area (1 percent).

The estimates of the number of abortions for Hispanic women in 1990 and 1991 were based on the proportions reported by CDC, with the denominator

adjusted to exclude abortions with race and Hispanic origin not reported (12,50). The resulting proportion Hispanic, 12.1 percent in 1990 and 13.5 percent in 1991, was then applied to the total number of abortions as estimated by AGI for each year. This procedure assumes that the 22 States reporting abortion data by Hispanic origin are representative of the U.S. population. Support for this assumption may be found in the birth data, which show that among the 22 States reporting Hispanic abortion data, the proportion of live births to Hispanic mothers in 1990, 14.7 percent, was identical to the proportion of births to Hispanic women in all the 48 States and the District of Columbia that reported Hispanic origin (6,50).

Fetal loss estimates for Hispanic women are based on data reported for white women in the 1982 and 1988 NSFG.

*Interpretation of data by race and Hispanic origin*—Data are shown by age and race in the tables and figures for several reasons. First, NCHS is frequently asked to provide data separately for important subgroups of the population, including race and Hispanic origin. Second, race is also associated with a number of indicators of social and economic status. Direct measures of pregnancy and abortion rates by socioeconomic status (e.g., education and income) would be very helpful, but they are not available for a sufficient number of States. The following data show the percent of persons living in households with incomes below the poverty level (16):

	White	Black	Hispanic
1973 .....	8.4	31.4	21.9
1989 .....	10.0	30.7	26.2

Thus, during the time period covered by this report, black and Hispanic persons had higher rates of poverty than white persons (16). Similarly, unemployment rates for black persons were higher, both overall and at each level of education, than for white persons (17). The median income of white families in 1989 was about \$36,000, compared with \$20,200 for black families and \$23,400 for Hispanic families (17,18). In short, black and Hispanic women have much lower average incomes and are much more

likely to live in poverty than white women. In addition, black persons under age 65 years are less likely to have private health insurance, much more likely to rely on Medicaid for health insurance, and more likely to have no coverage at all, than white persons. This was true in 1980, 1984, and 1989 (19). Thus, differences among white, black, and Hispanic women in pregnancy experience are most likely due to the lower income and educational levels of minority women, their limited access to health care and health insurance, the communities in which they live, and other factors (45–48). Direct measures of socioeconomic status such as education, income, or occupation should be incorporated into the analysis, but national abortion and birth data are not available by any of these indicators (education of parents was available from birth certificates for most, but not all, States) (6,20).

**Educational attainment**

Birth data by educational attainment of the mother has been available for 47 States and the District of Columbia in most of the study years. Data were *not* available for California, Texas, and Washington in 1980–87; for California, Texas, New York State (exclusive of New York City), and Washington in 1988; and for New York State (exclusive of New York City) and Washington in 1989–91. Because population statistics for these changing reporting areas have not been available each year, it has only been possible to compute birth rates by educational attainment for 1980 and 1985 (20). Beginning with the 1992 data year, all States are reporting mother’s educational attainment on the birth certificate. It will therefore be possible to compute birth rates by educational attainment annually.

Abortion statistics by educational attainment have been compiled for only a few States (53), representing approximately one quarter of U.S. abortions. Therefore, national estimates of abortions by educational attainment of the woman cannot be computed.

**Pregnancies, live births, and abortions per woman**

The estimates of the number of lifetime pregnancies, live births, and induced

abortions per woman shown in this report were computed by summing the 1991 age-specific rates for each outcome, each multiplied by 5, and dividing the result by 1,000. The figure for live births per woman, therefore, is equivalent to the total fertility rate (TFR), a hypothetical measure, which indicates how many births a woman would have if she experienced throughout her childbearing years the set of age-specific birth rates observed in a given calendar year (5–8). Thus, the 1991 total pregnancy rate (TPR) is the number of pregnancies a woman would have if the 1991 pregnancy rates continued; the total abortion rate (TAR) is the number of abortions a woman would have if the 1991 abortion rates continued. The TPR is the sum of the TFR, the TAR, and the TFLR (total fetal loss rate). The TFLR is not shown separately.

**Unwanted pregnancy**

In the NSFG, a pregnancy is classified as unwanted if a woman answered “no” to the following question:

“At the time you became pregnant with (BABY’S NAME), did you yourself actually want to have a(nother) baby at *some time?*” For example, if she already had two children, and did not want any more, but became pregnant with her third baby, the pregnancy ending in her third birth would be reported and classified as “unwanted.” Additional details are provided in other reports (39, 43).

**Contraceptive failure**

In the NSFG, a contraceptive “failure” is a pregnancy that the woman did not intend to have at the time she became pregnant, which occurred in a month in which she or her partner was using a contraceptive method. A “failure” may be a failure of the method itself, such as a condom breaking or a spermicide not working; or, more commonly, a failure to use the method at each act of intercourse (such as using a condom or diaphragm at some but not every act of intercourse, or not taking an oral contraceptive each day it should be taken), or incorrect use. This measure of contraceptive effectiveness, or “efficacy,” is called “use-effectiveness” in the literature (27).

**Sexual experience**

In this report, a woman is referred to as “sexually experienced” if she reports that she has ever had sexual intercourse. Data on sexual experience can be tabulated and reported any of several ways:

1. Sometimes only *premarital* sexual intercourse is counted (37), but in this report, any sexual intercourse is counted, whether it was premarital or not.
2. Sometimes only *never-married* women are studied; this report uses all women.
3. Data may be tabulated as sexual intercourse by “*exact age x,*” such as intercourse before the 15th birthday, before the 16th birthday, etc. Figures like this were published in a previous report (37).

This report shows any sexual intercourse, among all women, by the date of interview, from the 1982, 1988, and 1990 NSFG surveys. This is an appropriate measure for calculating pregnancy rates.

The other measures may be appropriate for more specialized analyses.

The 1980, 1988, and 1991 pregnancy rates for sexually experienced teenagers were estimates, derived in the following way: The 1980 pregnancy rates used 1982 NSFG data on sexual activity because no NSFG was done in 1980. Rates for 1991 for all races combined use 1990 NSFG data. The 1991 rates by race and origin used 1988 data on sexual activity because 1990 sample size and response rates for Hispanic and black teenage women were too low to compute reliable rates. For example, there were only 58 Hispanic teenagers in the 1990 sample, compared with 122 in 1988. In 1990 there were 211 black teenagers in the sample, compared with 375 in 1988. To summarize, the sampling errors were judged too large, the response rates too low, and the potential for nonresponse bias were too large in the 1990 sample for Hispanic and black teenagers, to calculate reliable pregnancy rates for sexually experienced Hispanic and black

teenagers. Therefore, 1988 data were used. If 1990 data had been used, however, the estimated pregnancy rates for 1991 per 1,000 sexually experienced teenagers would be as follows:

	<i>Rates based on 1988 data</i>	<i>Rates based on 1990 data</i>
Non-Hispanic white . .	161	160
Non-Hispanic black . .	357	311
Hispanic . . . . .	379	465

The results for non-Hispanic white teenagers would be virtually identical. For non-Hispanic black teenagers, however, the rate would be somewhat lower using 1990 data (311 compared with 357), but still much higher than the white rate. For Hispanic teenagers, the rate would be higher still (465 compared with 379), but would have an unacceptably large sampling error. Additionally, the rates for both Hispanic and black teenagers would have large potentials for uncorrectable response bias. Thus, the rates shown in the text use the more reliable 1988 data to calculate the pregnancy rates for sexually experienced teenagers.

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Acting Deputy Director  
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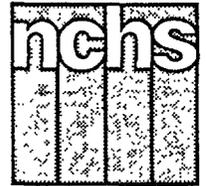
Associate Director for  
Vital and Health Statistics Systems  
Peter L. Hurley

**Division of Vital Statistics**

Acting Director  
Mary Anne Freedman

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# Monthly Vital Statistics Report



Final Data From the CENTERS FOR DISEASE CONTROL/National Center for Health Statistics

## Trends in Pregnancies and Pregnancy Rates, United States, 1980–88

by Stephanie J. Ventura, A.M.; Selma M. Taffel, B.B.A.; William D. Mosher, Ph.D., Division of Vital Statistics; and Stanley Henshaw, Ph.D., Alan Guttmacher Institute

### Contents

Introduction.....	1
Sources and methods.....	1
Trends.....	2
Rates in 1988.....	3
Outcomes in 1988.....	3
Discussion.....	4
References.....	5
List of tables.....	6

### Introduction

Detailed national data on the number of live births and live birth rates, based on information derived from live birth certificates, are published annually by the National Center for Health Statistics (NCHS). Although there is a growing interest in the total number of pregnancies and pregnancy rates in the United States, these data are not as readily available because of the difficulty in assembling timely data for the remaining two types of pregnancy outcome, abortions and fetal losses.

This is the third in a series of reports that estimates the number of

pregnancies and pregnancy rates by age and race of woman based on the latest available information. The first of these studies covered the period 1976–81 (1), and the second, 1976–85 (2). Although data on pregnancies and pregnancy rates for 1976–88 are shown in this report, information for the period 1976–79 is included mainly for historical reference. The focus of the present analysis is on changes in the overall number and rate of pregnancies and its components during the 1980's, and on differences for the year 1988 by mother's age and race. The most recent year covered is 1988 because comparable data on induced abortion are not available for 1989.

### Sources and methods

Estimates of the number of pregnancies and pregnancy rates in this article are the composite of the three outcomes of pregnancy—live birth, induced abortion, and fetal loss.

- The source of data for live births is the statistics of registered births published annually by NCHS (3).
- Data on induced abortions for 1976–88 are derived from published reports by the Alan Guttmacher Institute (AGI) (4). The AGI

estimates the national number of abortions from surveys it conducts of all known abortion providers. However, the number of induced abortions by mother's age and race is not available from these surveys. The AGI calculates these numbers by applying information on the characteristics of women having abortions to its national estimates. The data on characteristics of patients having abortions are collected by the National Center for Chronic Disease Prevention and Health Promotion from most State health departments (for example, 40 States, the District of Columbia, and New York City reported patients' ages in 1988) (5).

- Information for the fetal loss component is based on the 1982 and the 1988 National Survey of Family Growth (NSFG) conducted by NCHS (6,7). National samples of women 15–44 years of age were asked to report the dates and outcomes of each of their pregnancies, including spontaneous fetal losses from recognized pregnancies. In this report, the proportion of pregnancies ending in fetal loss in the 5 years preceding the surveys are used. To increase the



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reliability of the estimates by age and race, the proportions of pregnancies ending in fetal loss for both survey years were averaged and used for 1982–88. Fetal losses for years before 1982 were based on the 1982 NSFG.

The rate of fetal loss is highest in the early weeks of gestation, and most fetal losses occur in the first few months (8). Registration data on fetal deaths are generally limited to gestations of 20 weeks or more, so most fetal losses are not included. NSFG data, on the other hand, include all gestations. Therefore, the NSFG data are used to obtain a more complete count of fetal losses of recognized pregnancies. When NSFG and registration data on late fetal deaths are compared, the numbers are generally similar in both data sets.

As in previous years, pregnancy estimates by race are shown for white women and women of all other races combined because of the lack of separate information on induced abortion for black women. The proportion of live births of "all other races" that were black was 85.7 percent in 1976 and decreased to 77.8 percent in 1988, reflecting a growing proportion of Native American and Asian and Pacific Islander births. The corresponding proportions for induced abortions are unknown.

To match previously published reports on live births, the racial designation for live births is that of the child rather than of the woman; however, in this report the term woman rather than child is used. For approximately 97 percent of births occurring during this period, the race of the woman and the child is the same.

Data shown by age of woman refer to the age at outcome rather than age at conception, as has been done in other studies of abortion rates (4).

The denominators of the rates presented here (numbers of women by age and race) were obtained from published reports of the U.S. Bureau of the Census (9,10).

Data are shown by age and race in the tables and figures. This does not imply that differences shown are racial or genetic per se. Differences between

white women and women of other races are often due to the lower income and educational levels of minority women, their limited access to health care and health insurance, the neighborhoods in which they live, and other factors. The causes of these differences merit further investigation in future research.

Although educational attainment in particular is a very reliable measure of socioeconomic status, especially in interpreting fertility differentials, such data are only available for live births and fetal losses. Moreover, birth rates by educational attainment cannot be computed for each year because the population denominators needed for the rates are not available for most years. The numerators needed to compute the abortion rates—the numbers of abortions by educational attainment of the patient—were only available for 11 States and New York City in 1988 (5). These deficiencies mean that it is not possible to compute national abortion rates by educational attainment. A similar lack of data also prevents the computation of pregnancy rates by income, occupation, or other socioeconomic indicators.

## Trends

There were an estimated 6,341,000 pregnancies in 1988, the highest number reported since national estimates were first prepared in 1976 (tables 1,2). The total number of pregnancies in 1988 was 7 percent higher than in 1980 (5,913,000) and 27 percent higher than in 1976. Pregnancy rates reported in 1988, however, were very similar to rates reported in 1980. The number of pregnancies increased because the number of women in the childbearing ages continued to grow during the 1980's (table 1). Much of the 10-percent increase in the number of women aged 15–44 can be attributed to the baby-boom generation; these women were born in 1946–64 and were aged 16–34 years in 1980 and 24–42 years in 1988.

The overall pregnancy rate in 1988 was 109.0 pregnancies per 1,000 women aged 15–44 years compared with 111.9 in 1980. During the early 1980's, however, the rate declined by 5 per-

cent, falling to 106.6 in 1986 before increasing to 109.0 in 1988 (table 1). All components of pregnancy rates (live births, induced abortions, and fetal losses) changed in a similar pattern. Between 1976 and 1980, pregnancy rates had risen 9 percent, with most of the rise associated with the 21-percent increase in the induced abortion rate. Birth and fetal loss rates each rose by 5 percent between 1976 and 1980.

*Age*—Until the mid-1980's, pregnancy rates generally fell in each age group for women 15–29 years of age, and then increased through 1988. Rates rose for each age group for women 30–39 years during the 1980's (table 3). The rate for women aged 35–39 years increased sharply—by 30 percent between 1980 and 1988.

The patterns of change differed considerably by age for birth rates and abortion rates. The live birth rates for teenagers declined slightly during the early 1980's and rose back to their 1980 levels by 1988. Most of the 1986–88 increase was for younger teens, aged 15–17: their birth rate rose 10 percent from 1986 to 1988. The rise in teen birth rates continued in 1989 by an additional 6 to 8 percent (11).

The only age group showing sustained increases in birth rates throughout the 1980's has been for women in their thirties. Birth rates rose by 19 percent for women aged 30–34 years and by 41 percent for women aged 35–39 years between 1980 and 1988 (table 3). Much of this increase is associated with the ongoing tendency for childless women in their thirties to begin making up for their previously postponed childbearing (12).

Induced abortion rates for women aged 18–19, 20–24, and 30–39 years increased about 5 percent from 1980 to 1988; the rate for women in their late twenties also increased, but the change was small—only 2.5 percent. The small increase in the abortion rates in most age groups in the 1980's may be linked to the trend toward postponed marriage in the 1980's (13), because unmarried women have substantially higher abortion rates than married women (4).

Despite the small increases in the abortion rates for most age groups, the overall abortion rate was almost 7 percent lower in 1988 than in 1980 (27.4 compared with 29.3). This decrease is due largely to the changing age distribution of women within the child-bearing ages during the 1980's; the proportion of women aged 30-44 years increased by almost 20 percent from 1980 to 1988, with a comparable decline measured in the proportion of teenagers and women in their early twenties. Abortion rates are much lower for women 30 years and older than for younger women (table 3).

**Race**—The rate of induced abortions for white women fell 13 percent between 1980 and 1988 (table 3). In contrast, the induced abortion rate for all other women changed very little over the entire period; the rate in 1988 was nearly identical to the rate in 1980. The live birth rate for white women changed little during the 1980's, but the rate for all other women declined 6 percent between 1980 and 1986 and then rose by 5 percent from 1986 to 1988 (table 3).

**Rates in 1988**

The pregnancy rate for women aged 20-24 years has been consistently higher than the rate for any other age group (table 3). The rate in 1988 was 185 pregnancies per 1,000 women aged 20-24 years. In other words, 18.5 percent or nearly one of every five women aged 20-24 years had a pregnancy that ended in 1988. The rates for women aged 18-19 and 25-29 years were nearly as high as the rates for women aged 20-24 years and were similar: 162 and 167, respectively. The pregnancy rate for women aged 30-34 years was 110 per thousand, meaning that about 11 percent had a pregnancy ending in 1988. Pregnancy rates at ages below 18 and at 35 years of age and over were substantially lower, ranging from 3 to 74 per 1,000 (table 3).

While live birth rates were highest for women in their twenties (112-113 per 1,000 in 1988), induced abortion rates were highest for women aged 18-19 years (64 per 1,000) and 20-24 years (54 per 1,000). The rate for fetal

losses was highest for women aged 25-29 years (22 per 1,000 in 1988), with rates in 1988 for women aged 18-24 and 30-34 years ranging from 17 to 20.

**Racial differences**—For each age group, live birth, induced abortion, and fetal loss rates were higher for all other women than for white women (table 4). The major source of the racial disparity in pregnancy rates for women 20 years of age and over is in the rates for induced abortion (table 4 and figure 1). For women under 20 years of age, rates for live births and induced abortions were substantially higher for all other women than for white women. The induced abortion rates for all other women were two to five times the rates for white women in the same age groups.

**Outcomes in 1988**

The distribution of pregnancies by outcome of pregnancy was very stable in the 1980's. In 1988, 62 percent of pregnancies ended in live births,

25 percent in induced abortions, and 13 percent in fetal losses (table 5).

**Age**—In 1988, about two-thirds of pregnancies to women aged 25-34 ended in live births, 17-19 percent ended in induced abortions, and 13-16 percent ended in fetal losses. Among pregnancies to women aged 20-24 and 35-39, about 60 percent ended in live births (table 5 and figure 2).

About half (52 percent) of pregnancies to women in their forties ended in live births, with 31 percent ending in induced abortions. Pregnancies to teenagers were least likely to end with live births, 39 percent for teenagers under 15 years and 48 percent for teenagers aged 15-19. Half of pregnancies to teens under age 15 and 40 percent of pregnancies to women 15-19 years of age ended in induced abortions. The proportion of pregnancies ending in fetal losses ranged between 10 and 13 percent for women under 30 years of age and from 16 to 20 percent for older women.

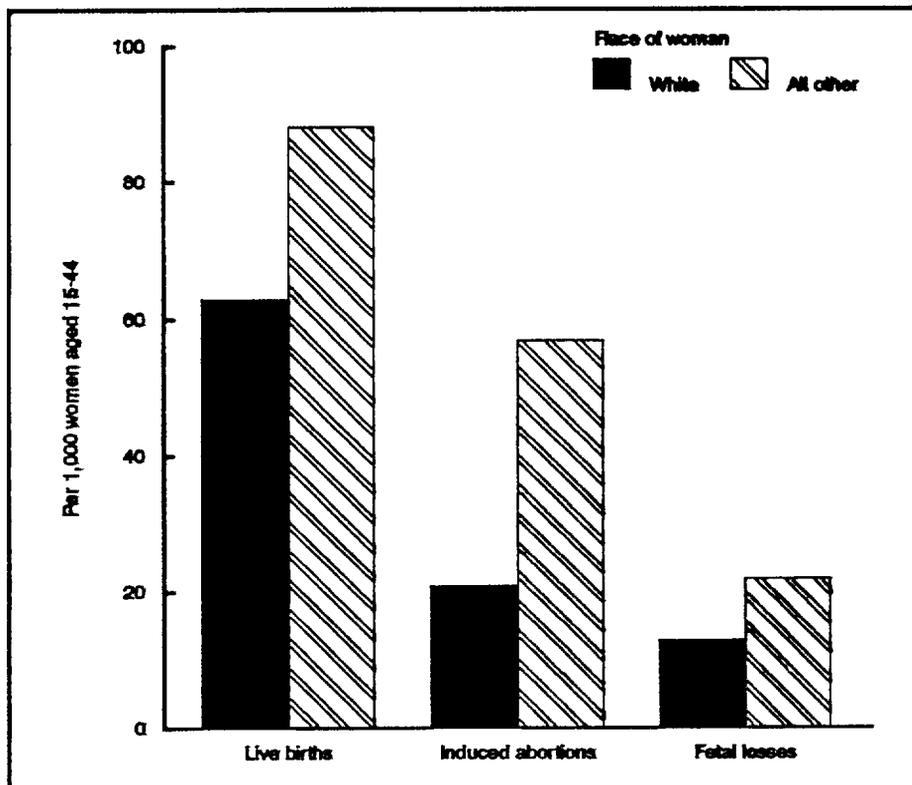


Figure 1. Estimated rates of live births, induced abortions, and fetal losses, by race: United States, 1988

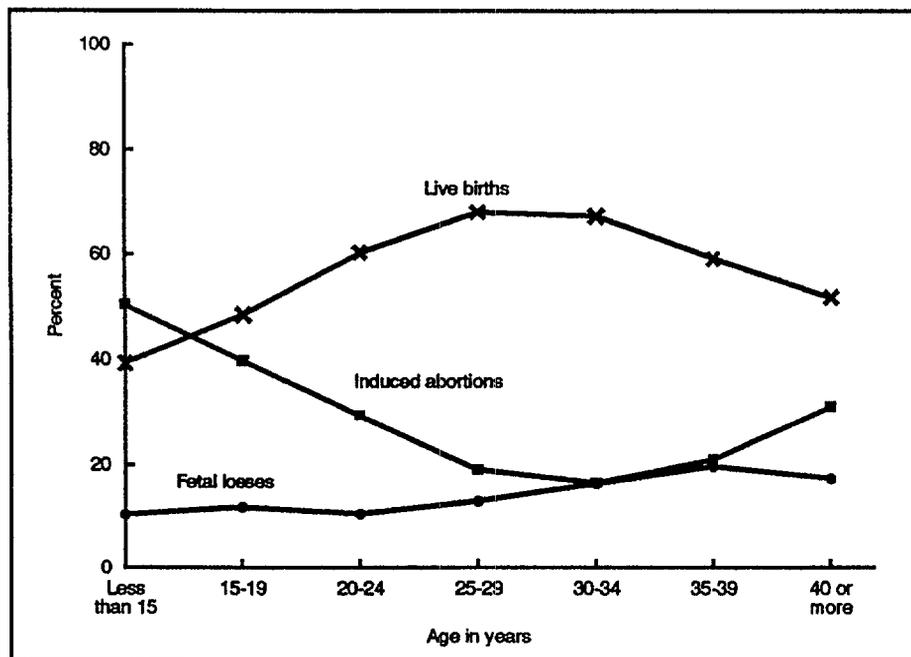


Figure 2. Percent of pregnancies ending as live births, induced abortions, or fetal losses, by age of woman: United States, 1988

*Race*—As shown in table 5 the distribution of pregnancy outcomes differs substantially by race of the woman. Pregnancies to white women were generally less likely to end in induced abortions than those to women of other races (22 percent compared with 34 percent).

Among pregnancies to teenagers, the proportions ending in induced abortions were nearly identical for white and all other women. But the abortion rate (table 4) for teenagers of all other races was at least double the rate for white teenagers, because more teens of all other races became pregnant. For women 20 years of age and over, the proportion of pregnancies to all other women ending in induced abortion was substantially higher than for white women in each age group (table 5).

## Discussion

*Trends*—Between 1980 and 1988, very little change occurred in pregnancy rates in the age groups 15 to 29 years. These rates dipped slightly between 1980 and 1986 and increased back to their 1980 levels by 1988. Trends in pregnancy for women under 30 years of age are important, because

in 1988 these women accounted for 73 percent of all pregnancies and 71 percent of all live births in the United States.

The trend towards delayed child-bearing that began in the 1970's continued in the 1980's, as reflected in rates for women aged 30 and older. Between 1980 and 1988, birth rates increased 19 percent at ages 30–34 and 41 percent at ages 35–39, because more women were still childless at those ages. For example, among women reaching age 35 by the end of 1988, 21 percent had not had any children compared with 15 percent of women aged 35 in 1980, according to vital statistics data (14,15). Births at age 35 and over accounted for less than 5 percent of all births in 1980, but this had risen to 8 percent by 1988. Compared with younger women, women aged 35 and over are exposed to elevated risks of infertility, pregnancy loss, and cesarean delivery (16–18); however, these risks did not deter increasing numbers of women from bearing children at those ages in the 1980's.

Throughout the 1980's, American women relied primarily on the more effective methods of contraception. Contraceptive use at the younger ages

was dominated by the pill and the condom and at the older ages, by female and male sterilization (19). However, the 1-year contraceptive failure rate in 1984–87 (the percent with an unintended pregnancy during the first year of use) was 14 percent—26 percent for teenagers, 18 percent for women 20–24 years, 13 percent for women 25–29 years, and 10 percent for women 30 and over (20). In addition, about 7 percent of all women aged 15–44 were exposed to the risk of pregnancy and were not using a method in 1982 and 1988—about 4 million women at any given time for both years (19).

*Race*—The differences in pregnancy rates between white and all other races (table 4) are substantial. Overall, the rate is 97 for white women and 167 for all others, a difference of about 70 per 1,000 women per year. This reflects a number of factors.

First, despite some convergence in recent years, black women are still more likely to begin intercourse at younger ages than are white women (21,22). Second, although 70 percent of white women used a contraceptive method at first intercourse in 1983–88, only 58 percent of black women used a method (23). Third, black women are about twice as likely to be having intercourse and not using a method as white women (19). Fourth, even during contraceptive use, black women have a contraceptive failure rate that is one-third higher than that for white women (20). These factors, as well as the fact that the proportion of births that are unwanted is more than twice as high among black women as among white women (24), may help to explain the higher live birth, abortion, and fetal loss rates of “all other” women. These differences in contraceptive use and efficacy, in turn, may be related to the lower education and income levels of minority women, their limited access to health care and health insurance, the neighborhoods in which they live, and other factors.

*Teenage pregnancy*—The number of teenage pregnancies declined about 14 percent between 1980 and 1988 (table 2) as the number of teenagers

began to shrink. Women who were teenagers in the late 1980's were born during the early 1970's, after the baby boom and during a period when birth rates dropped to historic low levels.

However, the *rate* of teenage pregnancies was about 11 percent (110 per 1,000) in 1980 and 1988 (table 3), despite a sharp increase in sexual activity among white teenagers. A recent study showed the proportion of white teenagers 15–19 years who had premarital intercourse rose from 41 percent in 1980 to 51 percent in 1988 (21). (Ninety-five percent of teenaged women have never been married.) Among black teenage women 15–19 years, the proportions who had premarital intercourse were 58 percent in 1980 and 59 percent in 1988—no significant change. Because most teenaged women have never been married, the pregnancy rate for sexually experienced women aged 15–19 years in 1980 and 1988 can be estimated by dividing the pregnancy rate by the proportion who have ever had premarital intercourse:

Race and year	Pregnancy rate per 1,000 women aged 15–19 years	Percent of women aged 15–19 years who ever had premarital sexual intercourse	Estimated pregnancy rate per 1,000 sexually experienced women aged 15–19 years
All races:			
1980 . . .	110.0	42.0	262
1988 . . .	110.8	51.5	215
White:			
1980 . . .	95.8	41.4	231
1988 . . .	93.4	50.6	185
All other:			
1980 . . .	181.3	58.1	312
1988 . . .	184.3	58.8	313

The overall pregnancy rate for white teenagers fell just 2 percent (2.4 per 1,000), but the pregnancy rate per 1,000 sexually experienced white teens fell 20 percent—from 231 to 185. In other words, sexually experienced white teens were *less* likely to become pregnant in 1988 than in 1980, but a higher proportion of teens were sexually experienced, so the overall pregnancy rate stayed about the same.

The decline in the pregnancy rate among sexually experienced white teenagers may be related to their sharp increase in condom use at first intercourse in the 1980's: the proportion using a condom at first intercourse increased from 28 percent in 1980–82 to 45 percent in 1983–88 (23). This increase in condom use at first intercourse may in turn be related to human immunodeficiency virus infection education efforts. It is not a result of increased use of family planning services, because the rate of use of family planning services by white teenagers in the 1980's was unchanged (25).

In contrast, the proportion of black teens who had had premarital intercourse remained at about 58 percent in 1980 and 1988. Their use of condoms at first premarital intercourse did not change significantly: about 30 percent in 1980–82 and 1983–88 (23). As a result, the pregnancy rate for all other women remained fairly constant in the 1980's.

There was very little difference in the pregnancy rates among teenagers of all other races in 1988 compared with 1980, either overall or among the sexually experienced. However, in 1988, the pregnancy rate for sexually experienced teenagers of all other races was 313 per 1,000, or about 1 in 3. This was about 70 percent higher than the rate for sexually experienced white teenagers, which was about 1 in 5.

### References

- Ventura SJ, Taffel S, Mosher WD. Estimates of pregnancies and pregnancy rates for the United States, 1976–81. *Public Health Rep* 100(1):31–34. 1985.
- Ventura SJ, Taffel SM, Mosher WD. Estimates of pregnancies and pregnancy rates for the United States, 1976–85. *Am J Public Health* 78(5):506–11. 1988.
- National Center for Health Statistics. *Vital statistics of the United States, vol I, natality*. Washington: Public Health Service. Annual issues, 1976–88.
- Henshaw SK, Van Vort J, eds. *Abortion factbook, 1992 edition: Readings, trends, and State and local data to 1988*. The Alan Guttmacher Institute. 1992.
- Koonin LM, Kochanek KD, Smith JC, Ramick M. *Abortion surveillance, United States, 1988*. Centers for Disease Control. *CDC Surveillance Summaries, July 1991, MMWR* 1991; 40(No. SS-2): 15–42.
- Judkins DR, Mosher WD, Botman S. *National Survey of Family Growth: Design, estimation, and inference*. National Center for Health Statistics. *Vital Health Stat* 2(109). 1991.
- Pratt WF, Mosher WD, Bachrach CA, Horn MC. *Understanding U.S. fertility: Findings from the National Survey of Family Growth, Cycle III*. *Popul Bull* 39(5). 1984.
- Leridon H. (Helzner JF, transl). *Intrauterine mortality. In: Human fertility: The basic components*. Chicago: University of Chicago Press. 1977.
- U.S. Bureau of the Census. *Estimates of the population of the United States, by age, sex, and race. Current population reports; series P-25, nos 917, 929, 949, 965, 985, 1000, 1022*. Washington: U.S. Government Printing Office. 1982–87.
- U.S. Bureau of the Census. *United States population estimates, by age, sex, race, and Hispanic origin: 1980 to 1988. Current population reports; series P-25, no 1045*. Washington: U.S. Government Printing Office. 1990.
- National Center for Health Statistics. *Advance report of final natality statistics, 1989. Monthly vital statistics report; vol 40 no 8, suppl*. Hyattsville, Maryland: Public Health Service. 1991.
- Ventura SJ. *Trends and variations in first births to older women, 1970–86*. National Center for Health Statistics. *Vital Health Stat* 21(47). 1989.
- U.S. Bureau of the Census. *Marital status and living arrangements: March 1989. Current population reports; series P-20, no 445*. Washington: U.S. Government Printing Office. 1990.
- National Center for Health Statistics. *Vital statistics of the United States, 1980, vol I, natality*. Washington: Public Health Service. 1984.
- National Center for Health Statistics. *Vital statistics of the United States, 1988, vol I, natality*. Washington: Public Health Service. 1990.
- Mosher WD, Pratt WF. *Fecundity and infertility in the United States*.

1965–88. Advance data from vital and health statistics; no 192. Hyattsville, Maryland: National Center for Health Statistics. 1990.

17. Mosher WD, Pratt WF. Fecundity, infertility, and reproductive health in the United States, 1982. National Center for Health Statistics. Vital Health Stat 23(14). 1987.

18. Taffel SM, Placek PJ, Kosary CL. U.S. cesarean section rates 1990: An update. Birth 19(1):21–22. 1992.

19. Mosher WD. Contraceptive practice in the United States, 1982–1988. Fam Plann Perspect 22(5):198–205. 1990.

20. Jones EF, Forrest JD. Contraceptive failure rates based on the 1988 NSFG. Fam Plann Perspect 24(1):12–19. 1992.

21. Centers for Disease Control. Premarital sexual experience among adolescent women: United States,

1970–88. Morbidity and Mortality Weekly Report 39:929–32. 1991.

22. Forrest JD, Singh S. The sexual and reproductive behavior of American women, 1982–1988. Fam Plann Perspect 22(5):206–214. 1990.

23. Mosher WD, McNally JW. Contraceptive use at first premarital intercourse: United States, 1965–1988. Fam Plann Perspect 23(3):108–116. 1991.

24. Williams LB, Pratt WF. Wanted and unwanted childbearing in the United States: 1973–88. Advance data from vital and health statistics; no 189. Hyattsville, Maryland: National Center for Health Statistics. 1990.

25. Mosher WD. Use of family planning services in the United States: 1982 and 1988. Advance data from vital and health statistics; no 184. Hyattsville, Maryland: National Center for Health Statistics. 1990.

**List of Tables**

1. Estimated number of pregnancies and pregnancy rates by outcome of pregnancy, and number of women: United States, 1976–88. . . . . 7

2. Estimated number of pregnancies by outcome of pregnancy, age of woman, and race: United States, 1976 and 1980–88 . . . . . 8

3. Estimated pregnancy rates by outcome of pregnancy, age of woman, and race: United States, 1976 and 1980–88 . . . . . 9

4. Estimated number of pregnancies and pregnancy rates by outcome of pregnancy, age of woman, and race: United States, 1988 . . . . . 10

5. Estimated percent distribution of pregnancies by outcome of pregnancy, according to age of woman and race: United States, 1988 . . . . . 11

Table 1. Estimated number of pregnancies and pregnancy rates by outcome of pregnancy and number of women: United States, 1976–88

Year	All pregnancies				All pregnancies				Women aged 15–44 years
	Total	Live births	Induced abortions	Fetal losses <sup>1</sup>	Total	Live births	Induced abortions	Fetal losses <sup>1</sup>	
	Number in thousands				Rate per 1,000 women aged 15–44 years <sup>2</sup>				
1988	6,341	3,910	1,591	840	109.0	67.2	27.3	14.4	58,192
1987	6,183	3,809	1,559	815	106.7	65.7	26.9	14.1	57,964
1986	6,129	3,757	1,574	798	106.6	65.4	27.4	13.9	57,483
1985	6,144	3,761	1,589	795	108.2	66.2	28.0	14.0	56,764
1984	6,018	3,669	1,577	771	107.3	65.4	28.1	13.8	56,061
1983	5,975	3,639	1,575	761	108.0	65.8	28.5	13.8	55,340
1982	6,024	3,681	1,574	769	110.2	67.3	28.8	14.0	54,652
1981	5,958	3,629	1,577	751	110.7	67.4	29.3	14.0	53,842
1980	5,913	3,612	1,554	747	111.9	68.4	29.4	14.1	52,833
1979	5,714	3,494	1,498	722	109.9	67.2	28.8	13.9	52,016
1978	5,433	3,333	1,410	690	106.7	65.5	27.7	13.5	50,921
1977	5,331	3,327	1,317	687	107.0	66.8	26.4	13.8	49,814
1976	5,002	3,168	1,179	655	102.7	65.0	24.2	13.4	48,721

<sup>1</sup>Spontaneous fetal losses from recognized pregnancies of all gestational periods as reported by women in the 1982 and 1988 National Surveys of Family Growth conducted by the National Center for Health Statistics. The rate of pregnancy loss depends on the degree to which losses at very early gestations are detected.

<sup>2</sup>Rates computed by relating the number of events to women of all ages to women aged 15–44 years.

NOTE: Due to rounding, figures may not add to totals.

### Symbols

- Data not available
- ... Category not applicable
- Quantity zero
- 0.0 Quantity more than zero but less than 0.05
- \* Figure does not meet standard of reliability or precision (estimate is based on fewer than 20 births in numerator or denominator)

Table 2. Estimated number of pregnancies by outcome of pregnancy, age of woman, and race: United States, 1976 and 1980-88

Pregnancy outcome and year	Age of woman										Race			
	Total	Under 15 years	15-19 years					20-24 years	25-29 years	30-34 years	35-39 years	40 years and over	White	All other
			Total	15-17 years	18-19 years	20-24 years	25-29 years							
All pregnancies														
Number in thousands														
1988	6,341	27	988	389	600	1,774	1,821	1,195	456	79	4,698	1,643		
1987	6,183	28	957	386	571	1,784	1,783	1,136	424	71	4,625	1,558		
1986	6,129	29	964	385	579	1,828	1,765	1,081	399	62	4,623	1,506		
1985	6,144	30	981	385	596	1,891	1,764	1,045	373	60	4,673	1,471		
1984	6,019	30	983	378	605	1,894	1,718	993	343	58	4,603	1,416		
1983	5,978	29	1,023	394	628	1,911	1,692	946	319	57	4,576	1,402		
1982	6,024	27	1,058	405	653	1,970	1,695	919	298	56	4,630	1,394		
1981	5,958	28	1,103	425	678	1,945	1,662	897	269	54	4,564	1,394		
1980	5,913	29	1,146	446	699	1,956	1,626	844	258	54	4,534	1,378		
1976	5,002	32	1,073	---	---	1,644	1,380	602	214	56	3,837	1,165		
Live births														
1988	3,910	11	478	177	302	1,067	1,239	804	270	41	3,046	863		
1987	3,809	10	462	173	290	1,076	1,216	761	248	36	2,992	817		
1986	3,757	10	462	169	293	1,102	1,200	721	230	31	2,970	786		
1985	3,761	10	467	168	300	1,141	1,201	696	214	29	2,991	769		
1984	3,669	10	470	167	303	1,142	1,166	658	196	28	2,924	746		
1983	3,639	10	489	173	317	1,160	1,148	625	180	27	2,904	735		
1982	3,681	10	514	181	333	1,206	1,152	605	168	26	2,942	738		
1981	3,629	10	527	187	340	1,212	1,128	581	146	25	2,909	721		
1980	3,612	10	552	198	354	1,226	1,108	550	141	24	2,899	714		
1976	3,168	12	559	215	343	1,092	972	392	116	26	2,568	600		
Induced abortions														
1988	1,591	14	393	158	234	520	347	197	96	24	1,026	565		
1987	1,559	14	382	161	221	518	337	192	93	23	1,017	542		
1986	1,574	16	389	165	224	531	339	186	92	21	1,045	529		
1985	1,589	17	399	166	234	548	336	181	87	21	1,076	513		
1984	1,577	17	399	161	238	551	332	176	82	20	1,087	491		
1983	1,575	16	411	166	245	548	328	172	78	21	1,084	491		
1982	1,574	15	419	168	250	552	326	168	73	21	1,095	479		
1981	1,577	15	433	176	257	555	316	167	70	21	1,108	470		
1980	1,554	15	445	183	261	549	304	153	67	21	1,094	460		
1976	1,179	16	363	153	210	392	221	110	57	21	785	394		
Fetal losses <sup>1</sup>														
1988	840	3	117	54	63	187	234	194	91	14	626	214		
1987	815	3	113	53	61	190	229	184	83	12	615	200		
1986	798	3	113	51	62	194	226	174	77	10	607	191		
1985	795	3	114	51	63	201	226	168	72	10	606	189		
1984	773	3	114	51	64	201	220	159	66	9	593	180		
1983	764	3	122	55	67	202	216	150	61	9	587	177		
1982	769	3	125	55	70	213	217	146	56	9	592	177		
1981	751	3	142	61	81	178	218	148	53	9	548	204		
1980	747	3	149	65	84	180	214	140	51	9	542	205		
1976	655	4	151	---	---	160	188	100	42	9	485	170		

<sup>1</sup>Spontaneous fetal losses from recognized pregnancies of all gestational periods as reported by women in the 1982 and 1988 National Surveys of Family Growth conducted by the National Center for Health Statistics. The rate of pregnancy loss depends on the degree to which losses at very early gestations are detected.

NOTE: Due to rounding, figures may not add to totals.

Table 3. Estimated pregnancy rates by outcome of pregnancy, age of woman, and race: United States, 1976 and 1980–88

Pregnancy outcome and year	Age of woman										Race	
	Total <sup>1</sup>	Under 15 years <sup>2</sup>	15–19 years							40 years and over <sup>3</sup>	White	All other
			Total	15–17 years	18–19 years	20–24 years	25–29 years	30–34 years	35–39 years			
Rate per 1,000 women												
All pregnancies												
1988	109.0	3.3	110.8	74.3	162.4	185.3	166.7	109.7	47.2	9.6	97.2	166.5
1987	106.7	3.5	105.8	71.1	158.0	180.6	162.5	106.4	44.8	9.0	95.8	161.0
1986	106.6	3.6	105.6	70.0	159.9	179.5	160.7	103.9	42.2	8.5	96.3	159.0
1985	108.2	3.6	107.7	71.2	160.7	180.4	162.3	102.7	41.6	8.4	98.4	159.1
1984	107.4	3.5	106.5	70.6	156.2	178.0	159.6	100.3	40.0	8.3	97.9	156.7
1983	108.0	3.3	108.2	73.0	154.9	178.4	160.3	98.0	39.1	8.5	98.4	158.7
1982	110.2	3.1	108.8	72.3	158.3	181.9	163.4	97.6	37.5	8.8	100.6	161.3
1981	110.7	3.1	110.3	72.7	163.1	179.5	165.0	94.8	36.7	8.8	100.3	167.1
1980	111.9	3.2	110.0	73.2	162.2	183.6	165.7	95.0	36.4	9.1	101.3	171.2
1976	102.7	3.2	101.4	---	---	166.1	150.7	82.3	35.3	9.9	92.0	166.4
Live births												
1988	67.2	1.3	53.6	33.8	81.7	111.5	113.4	73.7	27.9	5.0	63.0	87.5
1987	65.7	1.3	51.1	31.8	80.2	108.9	110.8	71.3	26.2	4.6	62.0	84.4
1986	65.4	1.3	50.6	30.6	81.0	108.2	109.2	69.3	24.3	4.3	61.9	83.0
1985	66.2	1.2	51.3	31.1	80.8	108.9	110.5	68.5	23.9	4.1	63.0	83.2
1984	65.4	1.2	50.9	31.1	78.3	107.3	108.3	66.5	22.8	4.0	62.2	82.5
1983	65.8	1.1	51.7	32.0	78.1	108.3	108.7	64.6	22.1	4.0	62.4	83.2
1982	67.3	1.1	52.9	32.4	80.7	111.3	111.0	64.2	21.1	4.1	63.9	85.5
1981	67.4	1.1	52.7	32.1	81.7	111.8	112.0	61.4	20.0	4.0	63.9	86.4
1980	68.4	1.1	53.0	32.5	82.1	115.1	112.9	61.9	19.8	4.1	64.7	88.6
1976	65.0	1.2	52.8	34.1	80.5	110.3	106.2	53.6	19.0	4.5	61.5	85.8
Induced abortions												
1988	27.3	1.7	44.0	30.3	63.5	54.2	31.8	18.1	9.9	3.0	21.2	57.3
1987	26.9	1.8	42.2	29.7	61.0	52.5	30.8	17.9	9.8	2.9	21.1	56.0
1986	27.4	1.9	42.6	30.0	61.9	52.2	30.9	17.9	9.7	2.8	21.8	55.9
1985	28.0	2.0	43.8	30.7	63.0	52.3	30.9	17.8	9.7	2.9	22.6	55.5
1984	28.1	2.0	43.2	30.0	61.5	51.8	30.9	17.8	9.5	2.9	23.1	54.3
1983	28.5	1.9	43.5	30.8	60.4	51.2	31.1	17.8	9.6	3.1	23.3	55.5
1982	28.8	1.7	43.1	30.1	60.7	50.9	31.5	17.8	9.2	3.3	23.8	55.4
1981	29.3	1.7	43.3	30.1	61.9	51.2	31.4	17.7	9.5	3.4	24.3	56.3
1980	29.4	1.7	42.7	30.1	60.6	51.6	31.0	17.2	9.4	3.5	24.4	57.2
1976	24.2	1.6	34.3	24.2	49.3	39.6	24.1	15.0	9.3	3.7	18.8	56.3
Fetal losses <sup>4</sup>												
1988	14.4	0.3	13.2	10.3	17.2	19.6	21.5	17.8	9.4	1.7	13.0	21.7
1987	14.1	0.4	12.5	9.7	16.8	19.2	20.9	17.2	8.8	1.5	12.7	20.6
1986	13.9	0.4	12.4	9.3	17.0	19.1	20.6	16.7	8.2	1.4	12.7	20.2
1985	14.0	0.4	12.5	9.5	17.0	19.2	20.8	16.5	8.0	1.4	12.8	20.4
1984	13.8	0.4	12.4	9.5	16.4	18.9	20.4	16.1	7.7	1.4	12.6	19.9
1983	13.8	0.3	12.9	10.2	16.5	18.9	20.5	15.6	7.4	1.4	12.6	20.0
1982	14.1	0.3	12.9	9.9	16.9	19.6	20.9	15.5	7.1	1.4	12.9	20.4
1981	14.0	0.4	14.2	10.5	19.4	16.4	21.6	15.7	7.2	1.4	12.0	24.4
1980	14.1	0.4	14.3	10.6	19.5	16.9	21.8	15.8	7.2	1.5	12.1	25.4
1976	13.4	0.4	14.3	---	---	16.2	20.5	13.7	6.9	1.6	11.6	24.3

<sup>1</sup>Rates computed by relating the number of events to women of all ages to women aged 15–44 years.

<sup>2</sup>Rates computed by relating the number of events to women under 15 years to women aged 10–14 years.

<sup>3</sup>Rates computed by relating the number of events to women aged 40 years and over to women aged 40–44 years.

<sup>4</sup>Spontaneous fetal losses from recognized pregnancies of all gestational periods as reported by women in the 1982 and 1988 National Surveys of Family Growth conducted by the National Center for Health Statistics. The rate of pregnancy loss depends on the degree to which losses at very early gestations are detected.

Table 4. Estimated number of pregnancies and pregnancy rates by outcome of pregnancy, age of woman, and race: United States, 1988

Pregnancy outcome and race	Age of woman							
	Total <sup>1</sup>	Under 15 years <sup>2</sup>	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40 years and over <sup>3</sup>
Number in thousands								
White								
All pregnancies . . . . .	4,698	11	673	1,270	1,406	927	350	59
Live births . . . . .	3,046	4	315	805	1,011	661	218	32
Induced abortions . . . . .	1,026	6	264	332	219	125	63	17
Fetal losses <sup>4</sup> . . . . .	626	2	94	133	177	141	69	10
All other								
All pregnancies . . . . .	1,643	16	315	504	415	268	106	20
Live births . . . . .	863	7	163	263	229	142	52	9
Induced abortions . . . . .	565	8	129	187	129	72	33	7
Fetal losses <sup>4</sup> . . . . .	214	1	23	54	58	53	21	4
Rate per 1,000 women								
White								
All pregnancies . . . . .	97.2	1.8	93.4	161.7	155.3	102.2	43.2	8.4
Live births . . . . .	63.0	0.6	43.7	102.5	111.6	72.9	26.9	4.6
Induced abortions . . . . .	21.2	0.9	36.6	42.3	24.1	13.8	7.8	2.4
Fetal losses <sup>4</sup> . . . . .	13.0	0.2	13.1	16.9	19.5	15.5	8.5	1.5
All other								
All pregnancies . . . . .	166.5	9.7	184.3	292.3	221.9	146.5	68.1	16.6
Live births . . . . .	87.5	4.0	95.3	152.3	122.3	77.8	33.4	7.3
Induced abortions . . . . .	57.3	4.9	75.5	108.5	68.8	39.6	21.0	6.2
Fetal losses <sup>4</sup> . . . . .	21.7	0.7	13.6	31.5	30.8	29.1	13.8	3.0

<sup>1</sup>Rates computed by relating the number of events to women of all ages to women aged 15-44 years.

<sup>2</sup>Rates computed by relating the number of events to women under 15 years to women aged 10-14 years.

<sup>3</sup>Rates computed by relating the number of events to women aged 40 years and over to women aged 40-44 years.

<sup>4</sup>Spontaneous fetal losses from recognized pregnancies of all gestational periods as reported by women in the 1982 and 1988 National Surveys of Family Growth conducted by the National Center for Health Statistics. The rate of pregnancy loss depends on the degree to which losses at very early gestations are detected.

NOTE: Due to rounding, figures may not add to totals.

Table 5. Estimated percent distribution of pregnancies by outcome of pregnancy, according to age of woman and race: United States, 1988

Pregnancy outcome and race	Age of woman							
	Total	Under 15 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40 years and over
<b>All races</b>								
All pregnancies . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Live birth . . . . .	61.7	39.2	48.4	60.2	68.1	67.2	59.1	51.6
Induced abortion . . . . .	25.1	50.5	39.7	29.3	19.1	16.5	21.0	30.9
Fetal loss . . . . .	13.3	10.3	11.9	10.6	12.9	16.2	19.9	17.4
<b>White</b>								
All pregnancies . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Live birth . . . . .	64.8	35.6	46.9	63.4	71.9	71.3	62.2	54.1
Induced abortion . . . . .	21.8	50.2	39.2	26.2	15.6	13.5	18.1	28.7
Fetal loss . . . . .	13.3	14.2	14.0	10.5	12.6	15.2	19.8	17.2
<b>All other</b>								
All pregnancies . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Live birth . . . . .	52.6	41.8	51.7	52.1	55.1	53.1	49.0	44.2
Induced abortion . . . . .	34.4	50.7	41.0	37.1	31.0	27.0	30.8	37.6
Fetal loss . . . . .	13.1	7.5	7.4	10.8	13.9	19.9	20.2	18.2

NOTE: Based on unrounded frequencies.

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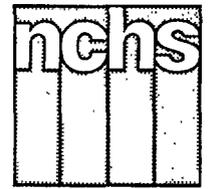
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**National Center for Health Statistics**

Director  
Manning Feinleib, M.D., Dr. P.H.  
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# Monthly Vital Statistics Report



Final Data From the National Center for Health Statistics

## Induced Terminations of Pregnancy: Reporting States, 1988

by Kenneth D. Kochanek, M.A., Division of Vital Statistics

### Contents

Highlights .....	1
Introduction .....	1
Number of abortions and abortion ratios .....	2
Age and race .....	2
Marital status .....	4
Years of school completed .....	4
Previous pregnancies .....	5
Period of gestation .....	6
Type of procedure .....	7
Residence patterns .....	7
References .....	8
List of detailed tables .....	9
Technical notes .....	30

### Highlights

In 1988 there were 297,251 abortions reported as having been obtained by residents within the 14 States reporting this information to the National Center for Health Statistics (NCHS), a decrease of 3,059 (1 percent) from the number for the previous year. The abortion ratio of 325.4 abortions per 1,000 live births in 1988 decreased from the ratio of 337.8 for the previous year, and continued the decline observed since 1985. From 1987 to 1988, ratios decreased for both white and black women. Decreases for

both white and black women were greater among married than unmarried women.

During 1982-88, for a 13-State reporting area, abortion ratios declined by 12 percent. For white women the declines were 16.7 percent, and for black women, 7.8 percent. Reductions were particularly marked among older women, with ratios declining by over one-third for women 40 years of age and over during this period.

The abortion ratio in 1988 for black women was 2¼ times that for white women, about the same relationship as in 1987. The median age and the age at which the greatest number of abortions occurred were both lower for white women (23.5 years and 18 years) than for black women (23.9 years and 21 years). The highest abortion ratios were for the youngest and the oldest women, a pattern observed for both black and white women. For almost every age group, ratios for black women were higher than for white women.

Induced abortion ratios are associated with marital status; both white and black married women had much lower ratios than unmarried women of the respective race groups in 1988.

Abortion ratios are also associated with educational attainment. For white women, ratios showed relatively little variation by number of years of school completed; but for black women, higher ratios were associated with increasing number of years of school completed.

In terms of previous pregnancy history, about 5 out of 10 women having induced terminations in 1988 had at least one previous live birth, and about 4 out of 10 had a prior induced termination. The median duration of gestation was 9.3 weeks for women having induced terminations in 1988. It was longer for black women, on the average, than for white women; longer for less educated women; and longer for out-of-State residents than for in-State residents.

In 1988 suction curettage was the type of procedure used in 97 percent of all induced terminations. Abortion ratios among women residing in metropolitan areas were almost 2¼ times as high as those among nonmetropolitan residents.

### Introduction

This report on induced terminations of pregnancy is based on 1988



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control  
National Center for Health Statistics  
Manning Feinleib, M.D., Dr. P.H., Director



reliability of the estimates by age and race, the proportions of pregnancies ending in fetal loss for both survey years were averaged and used for 1982–88. Fetal losses for years before 1982 were based on the 1982 NSFG.

The rate of fetal loss is highest in the early weeks of gestation, and most fetal losses occur in the first few months (8). Registration data on fetal deaths are generally limited to gestations of 20 weeks or more, so most fetal losses are not included. NSFG data, on the other hand, include all gestations. Therefore, the NSFG data are used to obtain a more complete count of fetal losses of recognized pregnancies. When NSFG and registration data on late fetal deaths are compared, the numbers are generally similar in both data sets.

As in previous years, pregnancy estimates by race are shown for white women and women of all other races combined because of the lack of separate information on induced abortion for black women. The proportion of live births of "all other races" that were black was 85.7 percent in 1976 and decreased to 77.8 percent in 1988, reflecting a growing proportion of Native American and Asian and Pacific Islander births. The corresponding proportions for induced abortions are unknown.

To match previously published reports on live births, the racial designation for live births is that of the child rather than of the woman; however, in this report the term woman rather than child is used. For approximately 97 percent of births occurring during this period, the race of the woman and the child is the same.

Data shown by age of woman refer to the age at outcome rather than age at conception, as has been done in other studies of abortion rates (4).

The denominators of the rates presented here (numbers of women by age and race) were obtained from published reports of the U.S. Bureau of the Census (9,10).

Data are shown by age and race in the tables and figures. This does not imply that differences shown are racial or genetic per se. Differences between

white women and women of other races are often due to the lower income and educational levels of minority women, their limited access to health care and health insurance, the neighborhoods in which they live, and other factors. The causes of these differences merit further investigation in future research.

Although educational attainment in particular is a very reliable measure of socioeconomic status, especially in interpreting fertility differentials, such data are only available for live births and fetal losses. Moreover, birth rates by educational attainment cannot be computed for each year because the population denominators needed for the rates are not available for most years. The numerators needed to compute the abortion rates—the numbers of abortions by educational attainment of the patient—were only available for 11 States and New York City in 1988 (5). These deficiencies mean that it is not possible to compute national abortion rates by educational attainment. A similar lack of data also prevents the computation of pregnancy rates by income, occupation, or other socioeconomic indicators.

### Trends

There were an estimated 6,341,000 pregnancies in 1988, the highest number reported since national estimates were first prepared in 1976 (tables 1,2). The total number of pregnancies in 1988 was 7 percent higher than in 1980 (5,913,000) and 27 percent higher than in 1976. Pregnancy rates reported in 1988, however, were very similar to rates reported in 1980. The number of pregnancies increased because the number of women in the childbearing ages continued to grow during the 1980's (table 1). Much of the 10-percent increase in the number of women aged 15–44 can be attributed to the baby-boom generation; these women were born in 1946–64 and were aged 16–34 years in 1980 and 24–42 years in 1988.

The overall pregnancy rate in 1988 was 109.0 pregnancies per 1,000 women aged 15–44 years compared with 111.9 in 1980. During the early 1980's, however, the rate declined by 5 per-

cent, falling to 106.6 in 1986 before increasing to 109.0 in 1988 (table 1). All components of pregnancy rates (live births, induced abortions, and fetal losses) changed in a similar pattern. Between 1976 and 1980, pregnancy rates had risen 9 percent, with most of the rise associated with the 21-percent increase in the induced abortion rate. Birth and fetal loss rates each rose by 5 percent between 1976 and 1980.

*Age*—Until the mid-1980's, pregnancy rates generally fell in each age group for women 15–29 years of age, and then increased through 1988. Rates rose for each age group for women 30–39 years during the 1980's (table 3). The rate for women aged 35–39 years increased sharply—by 30 percent between 1980 and 1988.

The patterns of change differed considerably by age for birth rates and abortion rates. The live birth rates for teenagers declined slightly during the early 1980's and rose back to their 1980 levels by 1988. Most of the 1986–88 increase was for younger teens, aged 15–17: their birth rate rose 10 percent from 1986 to 1988. The rise in teen birth rates continued in 1989 by an additional 6 to 8 percent (11).

The only age group showing sustained increases in birth rates throughout the 1980's has been for women in their thirties. Birth rates rose by 19 percent for women aged 30–34 years and by 41 percent for women aged 35–39 years between 1980 and 1988 (table 3). Much of this increase is associated with the ongoing tendency for childless women in their thirties to begin making up for their previously postponed childbearing (12).

Induced abortion rates for women aged 18–19, 20–24, and 30–39 years increased about 5 percent from 1980 to 1988; the rate for women in their late twenties also increased, but the change was small—only 2.5 percent. The small increase in the abortion rates in most age groups in the 1980's may be linked to the trend toward postponed marriage in the 1980's (13), because unmarried women have substantially higher abortion rates than married women (4).

**Table A. Ratio of reported induced terminations of pregnancy, 1988, and percent change, 1987–88 for 14-State area, and 1982–88 for 13-State area, by race and age of woman**

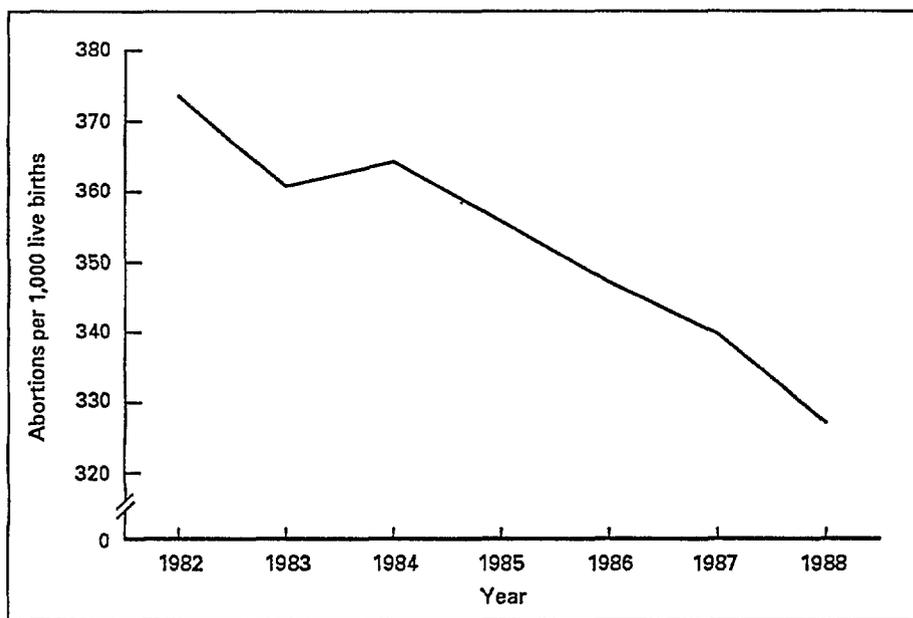
[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Age of woman	1988			1987–88			1982–88		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
	Ratio			Percent change <sup>2</sup>					
All ages . . . . .	325.4	265.8	598.1	-3.7	-3.0	-5.8	-12.4	-16.7	-7.8
Under 14 years . . . . .	1,576.1	1,786.3	1,477.7	-7.6	-2.4	-11.7	-14.8	-21.4	-11.1
14 years . . . . .	1,038.5	1,305.0	876.7	-9.4	4.8	-18.8	-17.4	-13.5	-17.6
15–19 years . . . . .	663.9	666.0	666.9	-2.9	-2.1	-4.9	-7.9	-11.2	-0.3
15 years . . . . .	847.9	968.2	719.6	-7.8	-7.3	-9.0	-16.7	-15.6	-17.1
16 years . . . . .	788.0	847.1	701.1	-5.8	-4.8	-7.9	-9.3	-11.1	-5.3
17 years . . . . .	686.9	700.6	666.1	-6.5	-5.1	-10.3	-10.3	-14.6	0.7
18 years . . . . .	706.1	716.8	690.6	-0.9	0.0	-2.8	-6.6	-10.7	5.3
19 years . . . . .	553.8	532.1	618.6	0.5	0.5	0.4	-6.1	-9.9	2.7
20–24 years . . . . .	393.7	331.7	622.3	-1.7	-1.0	-4.6	-1.3	-5.4	-2.2
25–29 years . . . . .	225.2	171.3	536.6	-3.1	-2.3	-5.5	-7.5	-10.5	-9.6
30–34 years . . . . .	195.8	146.5	515.4	-6.4	-6.1	-7.5	-19.6	-22.4	-17.5
35–39 years . . . . .	285.8	228.3	622.8	-7.1	-5.1	-9.9	-30.3	-32.2	-25.2
40 years and over . . . . .	499.9	426.9	851.1	-12.0	-11.7	-14.4	-35.4	-37.3	-29.6

<sup>1</sup>Includes races other than white and black.

<sup>2</sup>See Technical notes.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.



**Figure 1. Abortion ratios: 13-State area, 1982–88**

1.3 percent of all induced terminations and all live births in 1988. Although abortion ratios by age for both white and black women have a U-shaped pattern, the variation in abortion ratios is greater for white women (figure 2).

Trends in age-specific abortion ratios are presented in tables 3 and 4 for the 13- and 14-State reporting areas. Since 1982, abortion ratios for most age groups have decreased for both races. Decreases have been progressively greater with increasing

age for both race groups. The largest reductions were for the oldest age group, women 40 years of age and over. During 1982–88, abortion ratios for white women in this age group declined by 37 percent; for black women, by 30 percent.

For white women, there were 265.8 abortions per 1,000 live births in 1988 compared with 598.1 for black women. In both 1987 and 1988 the ratio of abortions to live births was higher for white women 14 years of age

and under than for black women, but for women 20 years of age and over, the ratio was higher for black than for white women in every 5-year age group in 1988.

From 1987 to 1988, abortion ratios for residents of the 14-State area decreased by 3.0 percent for white women and 5.8 percent for black women (table A). For white women, these decreases were reflected in reductions from 1987 to 1988 for all 5-year age groups, but showed an increase of 4.8 percent for women 14 years of age. For white women, decreases were largest at the oldest ages. For black women all 5-year age groups showed reductions, with the largest decreases at the youngest and oldest ages.

From 1982 through 1988, for a 13-State reporting area, abortion ratios by race declined. For white women the declines were 16.7 percent, and for black women, 7.8 percent.

The gap between black and white abortion ratios increased from a black/white ratio of 2.03 in 1982 for all ages, to 2.25 in 1988, an increase of 11 percent (table 4). Racial differences in abortion ratios increased for most age groups from 1982 through 1988. These increases ranged from 1 percent for women 25–29 years of age to 13 percent for women under 14 years of age. A decrease of

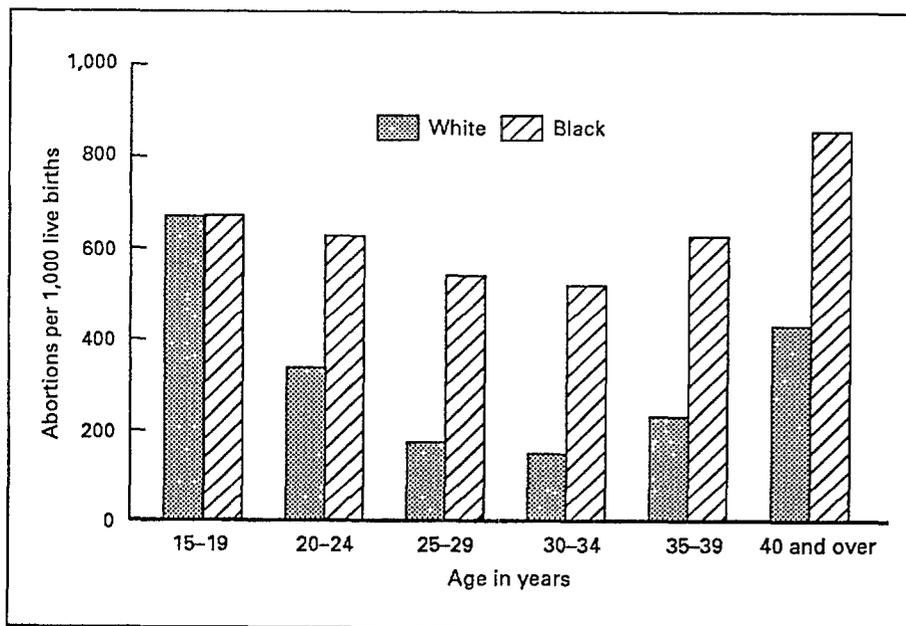


Figure 2. Abortion ratios by age and race of woman: 14-State area, 1988

5 percent occurred for the age group 14 years of age between 1982 and 1988.

### Marital status

Thirteen States (Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia) and New York City collected information on the marital status of women having induced terminations. Of the abortions occurring in this area in 1988, 21 percent were reported for married women and 79 percent for unmarried women (table 5).

Married women who had abortions tended to be older than unmarried women who had abortions. More than two-thirds (69 percent) of married women but only one-third (36 percent) of unmarried women having abortions were 25 years of age and over. The median age of married women having abortions in 1988 was 28.1 years, 5.3 years older than the median age of 22.8 years for unmarried women.

Black women who had abortions tended to be slightly older than white women who had abortions, regardless of marital status. Of married black women, 71 percent were 25 years of age and over compared with

68 percent of married white women. Similarly, among unmarried women having abortions, 38 percent of black women were 25 years of age or over compared with 35 percent of white women. In 1988 the median age of married black and white women obtaining an abortion was 28.1 and 27.8 years, respectively, compared with 23.2 years for unmarried black women and 22.5 years for unmarried white women.

Induced abortion ratios by marital status and race for abortions occurring to residents in the 13-State area and New York City are shown in table B. In 1988 married women had fewer than 1 induced abortion for every 10 live births; unmarried women had more than 9 induced abortions for

every 10 live births (table B). Among married women the abortion ratio for black women was more than 3¾ times that for white women. However, among unmarried women the relationship by race was reversed. For white unmarried women, the abortion ratio was almost 1½ times that for black unmarried women in 1988.

Decreases in abortion ratios between 1987 and 1988 among unmarried women were 9.1 percent for black women and 6.5 percent for white women. For married women, the decreases were 2.4 percent for black women, and 1.3 percent for white women.

### Years of school completed

For an 11-State area (Indiana, Kansas, Maine, Missouri, Montana, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia) and New York City, 1988 data are available on induced abortions by years of school completed (table 6). Reporting area residents having abortions had the same median years of school completed (12.7 years) as their counterparts carrying their pregnancies to term.

Abortion ratios are associated with years of school completed, but the pattern differs somewhat between white and black women (table C). For white women, the highest ratio was for those with 12 years of schooling completed (323.6 abortions per 1,000 live births), and the peak for black women was for those with 16 years or more of schooling completed (1127.2). For white women, the lowest ratio was for

Table B. Ratio of reported induced terminations of pregnancy, 1988, and percent change, 1987-88, by marital status and race of woman: 13-State area and New York City

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Race of woman	All women			Percent change <sup>1</sup>		
	Ratio	Married	Unmarried	All women	Married	Unmarried
All races <sup>2</sup>	321.2	90.1	960.5	-4.0	-1.7	-7.5
White	256.6	68.1	1,131.1	-2.6	-1.3	-6.5
Black	587.1	261.3	776.6	-7.0	-2.4	-9.1

<sup>1</sup>See Technical notes.

<sup>2</sup>Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table C. Ratio of reported induced terminations of pregnancy by years of school completed, race, and age of woman: 11-State area and New York City, 1988**

(Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area)

Race and age of woman	Total	Years of school completed				
		0-8 years	9-11 years	12 years	13-15 years	16 years or more
All races <sup>1</sup> . . . . .	327.0	146.4	235.4	433.1	269.0	273.7
10-17 years . . . . .	704.5	316.2	536.8	3,130.3	2,152.2	-
18-24 years . . . . .	415.1	87.8	161.1	481.5	495.5	1,233.2
25 years and over . . . . .	241.7	102.6	157.6	346.6	170.3	198.6
White . . . . .	258.4	123.4	241.8	323.6	231.1	188.8
10-17 years . . . . .	711.0	270.5	613.5	2,450.7	2,392.9	-
18-24 years . . . . .	350.0	82.7	162.2	381.0	466.0	873.5
25 years and over . . . . .	178.5	96.0	157.7	248.4	136.9	137.8
Black . . . . .	586.7	234.3	225.3	809.9	437.6	1,127.2
10-17 years . . . . .	696.9	384.5	423.2	4,357.5	1,937.5	-
18-24 years . . . . .	607.9	128.8	161.7	769.1	598.4	3,449.3
25 years and over . . . . .	546.1	123.8	155.0	744.1	337.4	833.2

<sup>1</sup>Includes races other than white and black.

NOTE: The 11-State area includes Indiana, Kansas, Maine, Missouri, Montana, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia.

those with the least years of school completed (0-8 years), compared with black women, for whom the lowest ratio was for those with 9-11 years of school completed.

The pattern of abortion ratios by educational attainment for all ages combined may be affected by the interrelation of age, marital status, and number of years of school completed. Very young women are more likely to be unmarried and may not have completed their schooling. Further, the ratios for women of high educational attainment may reflect the lower ratios that characterize older women. To take into account these interrelationships and to obtain a better indication of the association between educational attainment and abortion patterns, an analysis was made for women 25 years of age and over, most of whom will have completed their formal education by that age (figure 3). This analysis shows that the peak abortion ratios were for white women with 12 years of schooling completed (248.4 abortions per 1,000 live births) and for black women with 16 years or more of schooling completed (833.2). Abortion ratios showed some variation by number of years of school completed for both races, but for black women, higher abortion ratios were associated with increasing number of years of school completed.

**Previous pregnancies**

**Previous live births**

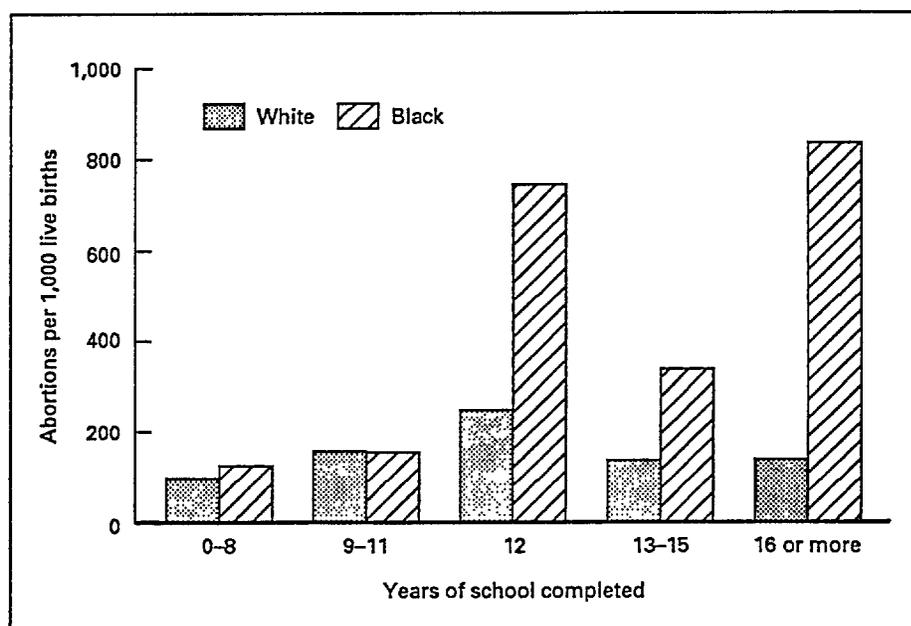
In 1988 one-half of the women who obtained abortions in the 14-State area had at least one previous live birth (table D). The percent was greater among black than among white women (63 percent compared with 43 percent) and was directly related to the age of the woman having an abortion: The older the woman, the

more likely she was to have had a previous live birth (table 7). Among women 40 years of age and over, 87 percent had had at least one previous live birth. In contrast, among women 15-17 years of age, only 9 percent had had at least one previous live birth. The same pattern existed for women of both races; at every age black women having abortions were more likely than white women to have had a previous live birth.

For a 13-State area (Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia) and New York City, data are available on the number of previous live births to women having abortions in 1988 according to the marital status of the woman. Approximately four-fifths (82 percent) of married women and two-fifths (43 percent) of unmarried women who obtained abortions had had at least one previous live birth (table 8).

**Previous induced terminations**

For the 14-State area, over one-half (53 percent) of black women and two-fifths of white women having abortions in 1988 had prior abortions (table E). In each age group, a larger



**Figure 3. Abortion ratios by years of school completed and race for women aged 25 years and over: 11-State area and New York City, 1988**

**Table D. Percent distribution of reported induced terminations of pregnancy by previous live births of woman, according to race: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Number of previous live births	All races <sup>1</sup>	Percent distribution	
		White	Black
Total . . . . .	100.0	100.0	100.0
No previous live birth . . . . .	50.3	57.2	36.6
1 previous live birth . . . . .	23.9	20.5	31.2
2 previous live births . . . . .	16.8	15.0	20.2
3 previous live births . . . . .	6.0	5.1	7.6
4 previous live births . . . . .	1.9	1.5	2.8
5 previous live births . . . . .	0.6	0.4	1.0
6 previous live births . . . . .	0.2	0.2	0.4
7 previous live births or more . . . . .	0.2	0.1	0.2

<sup>1</sup>Includes races other than white and black.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table E. Percent of reported induced terminations of pregnancy to women with a previous induced termination by race and age of woman: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman	All races <sup>1</sup>	White	Black
All ages . . . . .	44.1	39.6	53.0
Under 15 years . . . . .	7.9	7.4	8.2
15-17 years . . . . .	15.4	12.4	21.2
18-19 years . . . . .	26.3	22.5	35.5
20-24 years . . . . .	44.6	40.2	53.7
25-29 years . . . . .	56.8	53.0	64.5
30-34 years . . . . .	58.6	54.4	67.1
35-39 years . . . . .	55.0	49.4	66.8
40 years and over . . . . .	50.4	43.6	66.9

<sup>1</sup>Includes races other than white and black.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

proportion of black than white women had experienced a prior abortion (table 9). Among black women, more than one-half of each 5-year age group 20-24 years of age and over had experienced a prior induced abortion. Among white women, the age group 30-34 years of age had the largest percent of repeat abortions, 54 percent. For all women under 15 years of age, the youngest group, only 8 percent had had a previous induced abortion.

## Period of gestation

Almost 9 out of 10 induced terminations occurring in the 14-State area in 1988 occurred during the first trimester of pregnancy, as shown in table F and tables 10 and 11. Almost one-half (46 percent) were for pregnancies of 8 weeks' or less duration and 43 percent were for pregnancies of 9-12 weeks' duration. Only 11 percent of all abortions were obtained by

women whose pregnancies had lasted more than 12 weeks.

The median gestational period for black women having abortions, 9.6 weeks, was slightly longer than the corresponding period for white women, 9.1 weeks. The length of the gestational period also tended to be longer

for younger than for older women (figure 4). For women under 20 years of age, the median gestational period was 9.8 weeks, compared with 9.1 weeks for women 20 years of age and over. The same pattern by age prevailed for both black and white women. However, black women at every age had longer gestational periods prior to induced termination than white women.

For an 11-State area (Indiana, Kansas, Maine, Missouri, Montana, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia) and New York City in 1988, data are available to examine duration of pregnancy prior to abortion by educational attainment, age, and race (table 12). Generally, delayed terminations were associated with less educational attainment. For women with less than a high school education, the median gestational period was 9.9 weeks compared with 9.2 weeks for women with 12 years or more of school completed. When this analysis is restricted to women 25 years of age and over who had the opportunity to complete their schooling, the relationship is attenuated. The median duration of pregnancy prior to termination for women with less than a high school education was 9.4 weeks, and the median for those with 12 years or more of school completed was 8.9 weeks. The relationship between educational attainment and gestational duration was similar for white and black women, although black women of every educational attainment level had induced

**Table F. Percent distribution of reported induced terminations of pregnancy by period of gestation and median gestational period, according to age of woman: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All ages	Under 15 years							
		15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40 years and over	
		Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	11.1	6.9	6.6	8.1	10.0	12.5	14.7	16.8	17.0
7-8 weeks . . . . .	34.6	22.1	26.5	30.6	33.9	37.1	39.6	40.9	40.7
9-12 weeks . . . . .	43.2	45.2	48.8	47.7	44.8	41.3	38.3	35.0	35.2
13 weeks or more . . . . .	11.1	25.9	18.1	13.5	11.3	9.0	7.5	7.2	7.1
		Median							
Period of gestation . . . . .	9.3	10.5	10.1	9.7	9.4	9.0	8.8	8.6	8.7

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

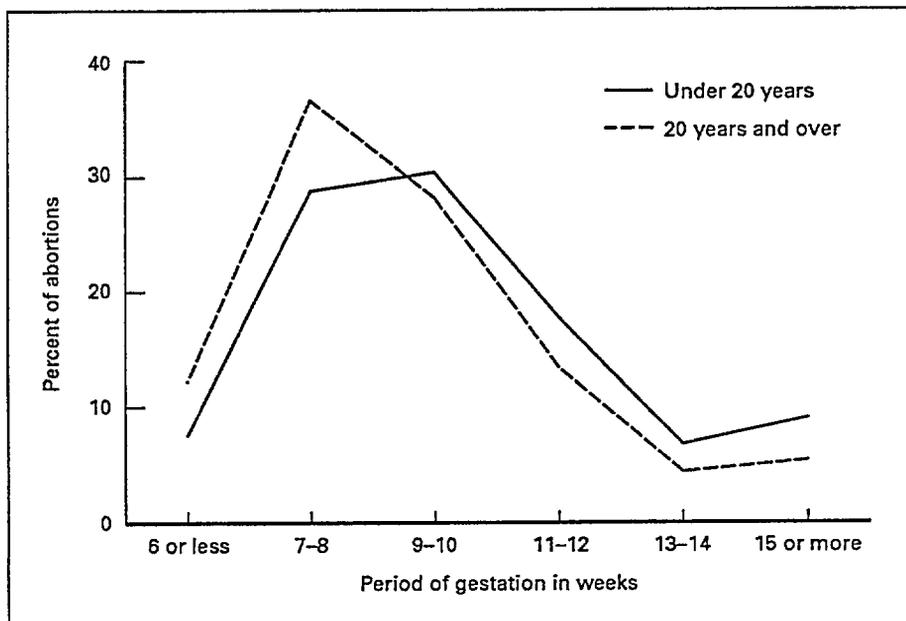


Figure 4. Percent distribution of abortions by period of gestation, according to woman's age: 13-State area, 1988

abortions later in their pregnancies than white women.

### Type of procedure

Data on types of procedures used to induce pregnancy terminations are available for the 14-State area for 1988 (tables G and 13). These figures indicate that more than 9 out of 10 induced abortions were performed by suction curettage (table 13). The second most frequently reported method, sharp curettage, accounted for only 1 percent of the induced abortions in 1988. Suction curettage was the predominant procedure for

induced abortions for all periods of gestation, decreasing slightly as the gestation period increased. Saline instillation, which accounted for 1 percent of the induced abortions, increases in prevalence as the gestational period increases, but never matches the dominance of the suction curettage procedure.

### Residence patterns

#### Metropolitan and nonmetropolitan residence

In 1988 metropolitan area residents obtained 86 percent of the

induced terminations occurring in the 14-State area (table 14). Residents of nonmetropolitan areas having induced abortions were, on the average, younger than women in metropolitan areas having abortions. The median age at termination for nonmetropolitan area women was 22.9 years; for metropolitan area women, 23.8 years.

The relative frequency of induced abortions per 1,000 live births was almost 2¼ times as high for residents of metropolitan areas as for residents of nonmetropolitan areas, 373.2 and 168.1, respectively (table H). Black women living in metropolitan areas were more than 2¾ times as likely to obtain abortions as black women living in nonmetropolitan areas, but the relative frequency of induced abortions among white women living in metropolitan areas was two times that of white women residing in nonmetropolitan areas. Among nonmetropolitan residents, abortion ratios for black women (229.4) were nearly 1½ times those for white women (162.1). In metropolitan areas, the abortion ratio for black women, 654.5, was more than two times that for white women (302.1). Thus, the difference in abortion ratios between the two racial groups was somewhat greater in metropolitan areas than in nonmetropolitan areas, reflecting the very high abortion ratios of black women in metropolitan areas.

#### Out-of-State residents

For the 14-State area in 1988, data are available to examine resident status of the woman by gestational age. In the 14-State area, only 7.9 percent of induced abortions were obtained by U.S. residents outside of their State of residence (table 15). More than three-fifths (63 percent) were in their county of residence, and the remainder (29 percent) were within their State but outside their county of residence.

Residence status is associated with the duration of gestation prior to termination. Women obtaining abortions outside their State of residence tend to have longer pregnancies prior to termination than women having abortions in their State of residence. The median gestational period for out-of-State

Table G. Percent distribution of reported induced terminations of pregnancy by procedure, according to period of gestation: 14-State area, 1988

[Data include only induced terminations of pregnancy occurring in the reporting area]

Type of procedure	Period of gestation <sup>1</sup>			
	All periods	Less than 13 weeks	13-15 weeks	16 or more weeks
		Percent distribution		
All procedures . . . . .	100.0	100.0	100.0	100.0
Suction curettage . . . . .	97.4	98.5	95.7	78.8
Sharp curettage . . . . .	0.8	0.8	1.4	1.5
Saline instillation . . . . .	0.7	0.1	1.5	11.7
Prostaglandin instillation . . . . .	0.3	0.0	0.7	3.8
Hysterotomy . . . . .	0.0	0.0	0.0	0.0
-lysterectomy . . . . .	0.0	0.0	0.0	0.0
Other . . . . .	0.8	0.6	0.8	4.1

<sup>1</sup> Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table H. Ratio of reported induced terminations of pregnancy, 1988, and percent change, 1987-88, by race and metropolitan-nonmetropolitan residence: 14-State area**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Geographic area	All races <sup>1</sup>			All races <sup>1</sup>		
	White	Black	Ratio	White	Black	Percent change <sup>2</sup>
All areas	325.4	265.8	598.1	-3.7	-3.0	-5.8
Metropolitan areas	373.2	302.1	654.5	-4.7	-4.1	-6.4
Nonmetropolitan areas	168.1	162.1	229.4	2.6	2.2	3.5

<sup>1</sup>Includes races other than white and black.  
<sup>2</sup>See Technical notes.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

residents was 9.6 weeks compared with 9.2 weeks for women obtaining abortions in their State of residence. About 18 percent of out-of-State residents obtained their abortions after 12 weeks compared with 11 percent for State residents.

Of all the induced terminations (including those for nonresidents of the United States) that were reported in 1988 to NCHS, the proportion in each of the 14 reporting States accounted for by residents of that State varied from a high of 96.5 percent in New York to a low of 58 percent in Kansas (table 16). Some 40 percent of the abortions reported by Kansas were for Missouri residents whereas only 2.1 percent of the abortions reported by Missouri were for Kansas residents in 1988. In Montana, 14.4 percent of abortions were obtained by nonresidents of the United States, mainly Canadians.

**References**

1. Burnham D. Induced terminations of pregnancy: reporting States, 1977 and 1978. Monthly vital statistics report; vol

30 no 6, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1981.

2. Burnham D. Induced terminations of pregnancy: reporting States, 1979. Monthly vital statistics report; vol 31 no 7, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1982.

3. Burnham D. Induced terminations of pregnancy: reporting States, 1980. Monthly vital statistics report; vol 32 no 8, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1983.

4. Prager K. Induced terminations of pregnancy: reporting States, 1981. Monthly vital statistics report; vol 34 no 4, suppl 2. Hyattsville, Maryland: National Center for Health Statistics. 1985.

5. Powell-Griner E. Induced terminations of pregnancy: reporting States, 1982 and 1983. Monthly vital statistics report; vol 35 no 3, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1986.

6. Powell-Griner E. Induced terminations of pregnancy: reporting States, 1984. Monthly vital statistics report; vol 36 no 5, suppl 2. Hyattsville, Maryland: National Center for Health Statistics. 1987.

7. Kochanek KD. Induced terminations of pregnancy: reporting States, 1985 and 1986. Monthly vital statistics report; vol 37 no 12, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1989.

8. Kochanek KD. Induced terminations of pregnancy: reporting States, 1987. Monthly vital statistics report; vol 38 no 9, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1989.

9. National Center for Health Statistics. Model State vital statistics act and model State vital statistics regulations, 1977 revision. Hyattsville, Maryland: Public Health Service. 1978.

10. Tietze C. Induced abortion, 1979: A Population Council fact book. New York: The Population Council, Inc. 1979.

11. Centers for Disease Control. Abortion surveillance—Annual summary 1979-1980. Atlanta: Public Health Service. 1983.

12. National Center for Health Statistics. Classification and coding instructions for induced termination of pregnancy records, 1988. Vital statistics instruction manual, part 10. Hyattsville, Maryland: Public Health Service. 1987.

13. National Center for Health Statistics. Vital records geographic classification, 1982. Vital statistics instruction manual, part 8. Hyattsville, Maryland: Public Health Service. 1985.

14. National Center for Health Statistics. Vital statistics of the United States, vol I, natality. Washington: Public Health Service. 1983.

15. Institute of Medicine. Legalized abortion and the public health. Washington: National Academy of Sciences. 1975.

## List of detailed tables

1. Number and ratio of reported induced terminations of pregnancy by race of woman: 13- and 14-State areas, 1982-88 . . . . .	10	and age of woman and percent distribution by previous live births, according to race and age of woman: 14-State area, 1988 . . . . .	16	years of school completed, race, and age of woman: 11-State area and New York City, 1988 . . . . .	23
2. Number and percent distribution of reported induced terminations of pregnancy by race and age of woman: 14-State area, 1988 . . . . .	10	8. Number of reported induced terminations of pregnancy by marital status and age of woman and percent distribution by previous live births, according to marital status and age of woman: 13-State area and New York City, 1988 . . . . .	18	13. Number of reported induced terminations of pregnancy by procedure and percent distribution by procedure, according to period of gestation: 14-State area, 1988 . . . . .	26
3. Number of reported induced terminations of pregnancy by age and race of woman: 13- and 14-State areas, 1982-88 . . . . .	11	9. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous induced terminations, according to race and age of woman: 14-State area, 1988 . . . . .	20	14. Number and percent distribution of reported induced terminations of pregnancy by metropolitan-nonmetropolitan residence, race, and age of woman: 14-State area, 1988 . . . . .	26
4. Ratio of reported induced terminations of pregnancy by age and race of woman: 13- and 14-State areas, 1982-88 . . . . .	12	10. Number of reported induced terminations of pregnancy by race of woman and percent distribution by period of gestation, according to race of woman: 14-State area, 1988 . . . . .	22	15. Number of reported induced terminations of pregnancy by residence status of woman and percent distribution by period of gestation, according to residence status of woman: 14-State area, 1988 . . . . .	27
5. Number of reported induced terminations of pregnancy by race and marital status of woman and percent distribution by age, according to race and marital status of woman: 13-State area and New York City, 1988 . . . . .	13	11. Number of reported induced terminations of pregnancy by age of woman and percent distribution by period of gestation, according to age of woman: 14-State area, 1988 . . . . .	22	16. Number of reported induced terminations of pregnancy in the reporting States and New York City, by place of residence and place of occurrence: United States, each State, New York City, and specified places outside the United States, 1988 . . . . .	28
6. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by years of school completed, according to race and age of woman: 11-State area and New York City, 1988 . . . . .	14	12. Number of reported induced terminations of pregnancy by years of school completed, race, and age of woman and percent distribution by period of gestation, according to			
7. Number of reported induced terminations of pregnancy by race					

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### Symbols

- Data not available
  - ... Category not applicable
  - Quantity zero
  - 0.0 Quantity more than zero but less than 0.05
  - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
  - \* Figure does not meet standards of reliability or precision (the base of the measure includes fewer than 20 events)
-

**Table 1. Number and ratio of reported induced terminations of pregnancy by race of woman: 13- and 14-State areas, 1982-88**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Area and year	Number			Ratio		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
<b>13-State area</b>						
1988	275,005	175,538	92,497	327.1	266.5	598.4
1987	278,273	177,734	93,877	339.8	274.9	635.6
1986	281,066	183,777	91,000	347.2	285.7	634.4
1985	288,036	192,780	89,548	355.7	297.6	639.3
1984	288,829	196,038	87,011	364.3	307.4	646.3
1983	286,091	194,268	86,426	360.8	304.2	644.4
1982	299,585	206,737	87,756	373.5	319.8	649.2
<b>14-State area</b>						
1988	278,887	179,345	92,505	325.4	265.8	598.1
1987	282,020	181,458	93,890	337.8	274.0	635.2
1986	284,655	187,332	91,023	344.9	284.3	634.2

<sup>1</sup>Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures for 1982-87. See Technical notes.

**Table 2. Number and percent distribution of reported induced terminations of pregnancy by race and age of woman: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All ages	297,251	186,581	100,104	92,832	7,272	10,566
Under 14 years	626	220	387	380	7	19
14 years	1,737	833	854	837	17	50
15-19 years	70,229	46,662	21,212	20,236	976	2,355
15 years	4,533	2,617	1,777	1,716	61	139
16 years	9,306	5,989	3,010	2,898	112	307
17 years	14,506	9,635	4,382	4,196	186	489
18 years	20,963	14,332	5,924	5,630	294	707
19 years	20,921	14,089	6,119	5,796	323	713
20-24 years	96,433	60,703	32,465	30,505	1,960	3,265
25-29 years	64,341	39,216	22,890	21,117	1,773	2,235
30-34 years	36,731	22,210	13,119	11,767	1,352	1,402
35-39 years	18,186	11,500	5,962	5,182	780	724
40 years and over	5,019	3,321	1,510	1,238	272	188
Not stated	3,949	1,916	1,705	1,570	135	328
Percent distribution						
All ages	100.0	100.0	100.0	100.0	100.0	100.0
Under 14 years	0.2	0.1	0.4	0.4	0.1	0.2
14 years	0.6	0.5	0.9	0.9	0.2	0.5
15-19 years	23.9	25.3	21.6	22.2	13.7	23.0
15 years	1.5	1.4	1.8	1.9	0.9	1.4
16 years	3.2	3.2	3.1	3.2	1.6	3.0
17 years	4.9	5.2	4.5	4.6	2.6	4.8
18 years	7.1	7.8	6.0	6.2	4.1	6.9
19 years	7.1	7.6	6.2	6.4	4.5	7.0
20-24 years	32.9	32.9	33.0	33.4	27.5	31.9
25-29 years	21.9	21.2	23.3	23.1	24.8	21.8
30-34 years	12.5	12.0	13.3	12.9	18.9	13.7
35-39 years	6.2	6.2	6.1	5.7	10.9	7.1
40 years and over	1.7	1.8	1.5	1.4	3.8	1.8

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 3. Number of reported induced terminations of pregnancy by age and race of woman: 13- and 14-State areas, 1982-88**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Race, area, and year	All ages	Under 14 years		15-19 years						20-39 years				40 years and over	Not stated
		14 years	14 years	Total	15 years	16 years	17 years	18 years	19 years	20-24 years	25-29 years	30-34 years	35-39 years		
All races <sup>1</sup>															
13-State area:															
1988	292,697	620	1,716	68,814	4,443	9,066	14,136	20,614	20,555	95,007	63,501	36,280	17,965	4,953	3,841
1987	295,800	682	1,831	69,086	4,774	9,953	14,457	19,934	19,968	98,366	64,367	36,794	18,227	4,824	1,623
1986	298,719	738	2,081	70,133	5,458	10,372	13,873	19,752	20,678	100,971	64,637	35,831	18,120	4,505	1,703
1985	305,938	714	2,339	73,567	5,668	10,264	14,426	21,040	22,169	104,947	64,714	35,259	17,609	4,728	2,061
1984	306,792	758	2,295	74,437	5,268	9,922	14,739	21,619	22,889	105,360	64,278	34,714	16,797	4,673	3,480
1983	304,496	801	2,189	76,579	5,399	10,206	14,717	22,641	23,616	103,890	63,230	33,826	16,016	4,757	3,208
1982	320,271	716	2,085	82,524	5,612	11,119	16,734	24,344	24,715	109,357	65,283	35,272	16,688	4,930	3,416
14-State area:															
1988	297,251	626	1,737	70,229	4,533	9,306	14,506	20,963	20,921	96,433	64,341	36,731	18,186	5,019	3,949
1987	300,310	685	1,851	70,477	4,876	10,190	14,826	20,278	20,307	99,842	65,210	37,236	18,422	4,894	1,693
1986	302,848	743	2,110	71,454	5,561	10,595	14,213	20,100	20,985	102,316	65,398	36,197	18,318	4,561	1,751
White															
13-State area:															
1988	182,241	214	813	45,299	2,529	5,760	9,281	13,992	13,737	59,327	38,417	21,777	11,287	3,260	1,847
1987	184,656	235	824	45,495	2,739	6,315	9,497	13,512	13,432	61,620	38,898	22,192	11,292	3,172	928
1986	190,125	260	951	46,899	3,125	6,595	9,400	13,596	14,183	65,073	39,503	21,994	11,507	2,994	944
1985	201,245	288	1,160	50,890	3,349	6,845	9,998	15,104	15,594	70,367	40,788	22,173	11,600	3,198	781
1984	203,408	289	1,139	52,399	3,148	6,700	10,394	15,647	16,510	71,482	40,954	22,107	11,109	3,173	756
1983	202,428	272	1,055	53,852	3,147	6,824	10,292	16,487	17,102	70,815	40,447	21,517	10,521	3,141	808
1982	216,721	276	1,091	59,512	3,411	7,577	12,148	18,176	18,200	75,789	42,368	22,572	10,972	3,297	844
14-State area:															
1988	186,581	220	833	46,662	2,617	5,989	9,635	14,332	14,089	60,703	39,216	22,210	11,500	3,321	1,916
1987	189,014	238	844	46,853	2,837	6,548	9,855	13,850	13,763	63,055	39,707	22,613	11,477	3,239	988
1986	194,048	265	978	48,165	3,224	6,812	9,728	13,932	14,469	66,361	40,222	22,336	11,694	3,045	982
Black															
13-State area:															
1988	92,789	380	837	20,218	1,715	2,892	4,190	5,628	5,793	30,490	21,110	11,767	5,180	1,238	1,569
1987	93,999	424	943	20,352	1,842	3,198	4,333	5,459	5,520	31,521	21,583	11,994	5,435	1,238	509
1986	90,700	444	1,036	19,680	2,068	3,248	3,728	5,208	5,428	30,372	21,107	11,242	5,178	1,163	478
1985	90,002	407	1,123	19,918	2,125	3,069	3,911	5,144	5,669	30,266	20,659	11,052	4,915	1,216	446
1984	87,033	450	1,096	19,308	1,945	2,884	3,832	5,168	5,479	29,241	20,135	10,647	4,619	1,216	321
1983	86,626	511	1,080	20,108	2,109	3,051	3,930	5,342	5,676	28,770	19,679	10,374	4,496	1,308	300
1982	88,331	423	943	20,373	2,048	3,215	4,081	5,417	5,612	29,339	19,963	10,856	4,747	1,317	370
14-State area:															
1988	92,832	380	837	20,236	1,716	2,898	4,196	5,630	5,796	30,505	21,117	11,767	5,182	1,238	1,570
1987	94,025	424	943	20,361	1,842	3,198	4,338	5,461	5,522	31,530	21,586	11,996	5,436	1,238	511
1986	90,730	444	1,036	19,694	2,070	3,249	3,733	5,211	5,431	30,382	21,111	11,243	5,179	1,163	478

<sup>1</sup>Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 4. Ratio of reported induced terminations of pregnancy by age and race of woman: 13- and 14-State areas, 1982-88**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area among residents of the area]

Race, area, and year	All ages	Under 14 years		15-19 years						20-24 years	25-29 years	30-34 years	35-39 years	40 years and over
		14 years	Total	15 years	16 years	17 years	18 years	19 years						
All races <sup>1</sup>														
13-State area:														
1988	327.1	1,575.3	1,038.9	665.1	847.0	785.9	687.2	707.6	556.2	396.7	226.7	196.8	287.0	500.6
1987	339.8	1,701.1	1,148.0	685.7	916.7	838.4	735.7	713.9	553.8	403.9	234.0	210.2	309.8	568.1
1986	347.2	1,760.3	1,240.8	696.3	1,037.6	909.6	731.9	703.4	559.4	405.5	237.2	213.8	331.6	605.0
1985	355.7	1,728.1	1,371.1	720.8	1,084.3	892.6	751.2	739.6	589.3	410.1	237.2	218.5	344.9	652.7
1984	364.3	1,946.9	1,501.3	728.8	1,077.2	890.5	759.5	760.0	599.0	414.3	242.4	225.6	358.3	692.1
1983	360.8	2,008.5	1,360.1	707.2	1,013.0	860.1	720.7	746.9	586.3	397.5	239.8	229.4	370.0	720.7
1982	373.5	1,850.0	1,257.8	722.4	1,016.2	866.5	765.7	757.3	592.1	402.0	245.1	244.8	411.9	774.9
14-State area:														
1988	325.4	1,576.1	1,038.5	663.9	847.9	788.0	686.9	706.1	553.8	393.7	225.2	195.8	285.8	499.9
1987	337.8	1,705.1	1,146.1	683.7	919.3	836.1	734.6	712.8	550.8	400.6	232.3	209.1	307.7	568.2
1986	344.9	1,748.3	1,236.3	693.5	1,040.4	908.0	731.3	700.9	555.1	401.7	235.4	212.1	330.1	605.1
White														
13-State area:														
1988	266.5	1,789.5	1,312.3	667.6	968.5	844.3	701.4	719.1	534.7	333.7	171.8	146.7	228.7	426.5
1987	274.9	1,818.4	1,250.6	683.0	1,042.3	894.7	740.0	717.8	533.0	337.3	176.0	156.4	241.7	481.6
1986	285.7	2,066.7	1,361.9	704.9	1,145.2	991.6	767.3	717.5	547.2	344.6	179.8	161.4	266.7	529.1
1985	297.6	2,186.0	1,557.5	739.7	1,222.5	980.0	786.1	772.6	583.6	354.2	181.8	166.8	283.9	574.9
1984	307.4	2,088.7	1,845.9	756.8	1,239.3	984.1	811.1	804.1	598.8	360.4	187.3	172.8	294.0	607.2
1983	304.2	1,882.7	1,574.5	724.9	1,074.2	950.2	755.7	782.6	581.1	345.2	185.3	176.5	302.2	627.5
1982	319.8	2,277.1	1,516.8	751.8	1,147.4	949.7	820.9	805.4	593.4	352.8	191.9	189.1	337.5	680.5
14-State area:														
1988	265.8	1,786.3	1,305.0	666.0	968.2	847.1	700.6	716.8	532.1	331.7	171.3	146.5	228.3	426.9
1987	274.0	1,829.4	1,245.7	680.4	1,044.7	890.1	738.3	716.5	529.5	335.1	175.4	156.1	240.6	483.6
1986	284.3	2,015.6	1,346.9	701.1	1,148.7	987.5	766.0	714.1	541.8	341.6	179.0	160.6	266.0	530.7
Black														
13-State area:														
1988	598.4	1,477.7	876.7	667.2	720.4	701.3	666.4	690.8	619.0	622.7	537.0	516.0	623.1	851.1
1987	635.6	1,672.6	1,081.6	701.6	790.3	761.8	742.0	711.1	616.6	653.0	568.5	557.1	691.3	994.5
1986	634.4	1,609.3	1,153.5	686.8	933.1	792.7	666.9	678.8	598.9	647.8	578.0	550.0	704.8	973.8
1985	639.3	1,521.5	1,245.6	689.9	941.5	763.5	690.3	669.5	614.6	649.3	579.6	565.4	703.0	1,043.8
1984	646.3	1,884.2	1,290.8	678.1	914.9	747.9	664.1	667.9	611.4	651.4	587.6	591.2	737.3	1,083.3
1983	644.4	2,109.3	1,221.9	677.4	949.1	725.2	657.8	669.8	611.8	636.2	590.5	595.4	758.9	1,128.0
1982	649.2	1,662.9	1,064.5	668.9	868.5	740.5	661.5	656.3	602.8	636.9	594.0	625.8	833.4	1,208.1
14-State area:														
1988	598.1	1,477.7	876.7	666.9	719.6	701.1	666.1	690.6	618.6	622.3	536.6	515.4	622.8	851.1
1987	635.2	1,672.6	1,080.2	701.3	790.4	761.2	742.4	710.7	616.2	652.6	567.9	557.1	691.0	993.9
1986	634.2	1,609.3	1,153.7	686.6	932.7	792.3	667.0	678.4	599.0	647.5	577.9	550.5	705.0	973.7

<sup>1</sup>Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures for 1982-87. See Technical notes.

Table 5. Number of reported induced terminations of pregnancy by race and marital status of woman and percent distribution by age, according to race and marital status of woman: 13-State area and New York City, 1988

[Data include only induced terminations of pregnancy occurring in the reporting area]

Marital status and age of woman	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All women . . . . .	244,566	148,133	88,868	82,205	6,663	7,565
Percent distribution						
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years. . . . .	0.9	0.6	1.3	1.4	0.4	0.8
15-17 years. . . . .	9.6	9.9	9.2	9.6	5.0	9.5
18-19 years. . . . .	13.9	15.1	12.0	12.3	8.4	13.8
20-24 years. . . . .	32.5	32.5	32.6	33.0	27.1	31.1
25-29 years. . . . .	22.2	21.5	23.5	23.3	25.1	21.7
30-34 years. . . . .	12.9	12.3	13.7	13.2	19.3	14.1
35-39 years. . . . .	6.3	6.3	6.2	5.9	10.8	7.2
40 years and over . . . . .	1.7	1.8	1.6	1.4	3.9	1.9
Number						
Married women . . . . .	48,842	31,279	16,133	13,061	3,072	1,430
Percent distribution						
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years. . . . .	0.1	0.1	0.1	0.1	0.0	—
15-17 years. . . . .	1.1	1.1	0.9	1.0	0.5	0.9
18-19 years. . . . .	4.0	4.7	2.7	2.9	1.9	2.8
20-24 years. . . . .	25.5	26.4	23.7	25.1	18.0	24.1
25-29 years. . . . .	30.2	29.5	31.6	32.1	29.1	29.7
30-34 years. . . . .	22.5	21.4	24.5	23.8	27.8	24.1
35-39 years. . . . .	12.7	12.7	12.6	11.7	16.4	14.4
40 years and over . . . . .	4.0	4.1	3.9	3.4	6.3	4.0
Number						
Unmarried women. . . . .	187,698	111,946	70,481	67,047	3,434	5,271
Percent distribution						
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years. . . . .	1.1	0.8	1.6	1.6	0.7	0.9
15-17 years. . . . .	11.9	12.3	11.2	11.3	9.1	12.1
18-19 years. . . . .	16.6	18.1	14.1	14.1	14.3	16.8
20-24 years. . . . .	34.3	34.1	34.6	34.6	35.2	33.3
25-29 years. . . . .	20.2	19.3	21.6	21.6	21.5	19.4
30-34 years. . . . .	10.3	9.7	11.2	11.1	11.8	11.1
35-39 years. . . . .	4.6	4.5	4.8	4.7	5.7	5.1
40 years and over . . . . .	1.1	1.1	1.0	1.0	1.7	1.3
Number						
Not stated . . . . .	8,026	4,908	2,254	2,097	157	864
Percent distribution						
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years. . . . .	0.5	0.3	0.6	0.7	—	1.0
15-17 years. . . . .	8.4	9.3	6.8	7.0	4.6	7.8
18-19 years. . . . .	12.5	13.0	11.0	11.4	5.3	13.9
20-24 years. . . . .	32.0	32.3	32.0	32.4	27.6	29.2
25-29 years. . . . .	22.8	22.1	24.5	24.4	25.7	22.5
30-34 years. . . . .	14.5	13.9	15.5	15.3	18.4	15.7
35-39 years. . . . .	7.2	6.7	7.7	7.2	13.2	8.4
40 years and over . . . . .	2.2	2.4	1.9	1.6	5.3	1.6

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 6. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by years of school completed, according to race and age of woman: 11-State area and New York City, 1988

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and years of school completed	All races	White	All other			Not stated
			Total	Black	Other races	
All ages	224,529	134,181	87,015	80,922	6,093	3,333
			Number			
			Percent distribution			
All years of school completed	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years	1.6	1.6	1.6	1.5	2.7	2.2
9-11 years	13.0	14.8	10.2	10.2	9.2	13.8
12 years	54.1	50.4	59.6	60.1	52.5	59.4
13-15 years	16.9	19.0	14.0	14.0	13.2	12.2
16 years or more	14.4	14.2	14.7	14.1	22.5	12.4
			Number			
Under 15 years	1,954	831	1,097	1,077	20	26
			Percent distribution			
All years of school completed	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years	68.5	65.3	71.7	71.3	91.7	46.2
9-11 years	31.5	34.7	28.3	28.7	8.3	53.8
12 years	-	-	-	-	-	-
13-15 years	-	-	-	-	-	-
16 years or more	-	-	-	-	-	-
			Number			
15-17 years	21,438	13,267	7,890	7,591	299	281
			Percent distribution			
All years of school completed	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years	4.0	3.8	4.4	4.5	2.1	5.0
9-11 years	59.5	66.5	48.1	47.6	60.7	49.8
12 years	36.0	29.3	47.0	47.4	36.9	44.8
13-15 years	0.5	0.5	0.4	0.4	0.3	0.5
16 years or more	-	-	-	-	-	-
			Number			
18-19 years	30,570	19,944	10,231	9,738	493	395
			Percent distribution			
All years of school completed	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years	0.7	0.8	0.4	0.3	1.5	0.7
9-11 years	14.4	15.3	12.6	12.6	13.2	17.1
12 years	65.3	62.5	70.7	71.0	65.2	67.9
13-15 years	17.4	19.8	12.8	12.7	15.3	11.9
16 years or more	2.3	1.7	3.5	3.4	4.8	2.4
			Number			
20-24 years	71,816	42,985	27,894	26,293	1,601	937
			Percent distribution			
All years of school completed	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years	0.8	0.9	0.5	0.4	1.4	1.7
9-11 years	7.9	9.4	5.7	5.7	5.5	9.9
12 years	55.9	51.5	62.5	63.2	51.2	59.3
13-15 years	21.9	24.8	17.6	17.5	20.6	16.1
16 years or more	13.5	13.4	13.6	13.2	21.2	13.0

See note at end of table.

**Table 6. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by years of school completed, according to race and age of woman: 11-State area and New York City, 1988—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and years of school completed	All races	White	All other			Not stated
			Total	Black	Other races	
25–29 years . . . . .	49,426	28,667	20,040	18,534	1,506	719
			Number			
			20,040	18,534	1,506	719
			Percent distribution			
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0–8 years . . . . .	0.9	1.1	0.6	0.4	2.1	1.1
9–11 years . . . . .	6.6	7.7	4.9	4.8	6.4	9.0
12 years . . . . .	54.9	52.4	58.3	58.8	51.2	59.6
13–15 years . . . . .	17.7	18.9	16.1	16.4	12.1	11.2
16 years or more . . . . .	20.0	19.9	20.1	19.5	28.2	19.0
30–34 years . . . . .	28,531	16,382	11,686	10,531	1,155	463
			Number			
			11,686	10,531	1,155	463
			Percent distribution			
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0–8 years . . . . .	1.1	1.2	1.0	0.7	3.6	1.2
9–11 years . . . . .	5.0	5.4	4.5	4.3	5.9	7.8
12 years . . . . .	52.8	50.0	56.4	56.8	52.9	62.5
13–15 years . . . . .	17.4	19.1	15.0	15.5	10.7	14.1
16 years or more . . . . .	23.7	24.4	23.1	22.7	26.9	14.4
35–39 years . . . . .	13,986	8,386	5,352	4,688	664	248
			Number			
			5,352	4,688	664	248
			Percent distribution			
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0–8 years . . . . .	1.4	1.2	1.5	1.1	4.5	4.6
9–11 years . . . . .	4.0	3.7	4.4	4.3	5.2	4.0
12 years . . . . .	51.4	46.9	58.1	58.7	53.2	58.4
13–15 years . . . . .	16.9	19.9	12.3	12.8	9.1	13.3
16 years or more . . . . .	26.3	28.2	23.6	23.0	28.0	19.7
40 years and over . . . . .	3,819	2,414	1,345	1,113	232	60
			Number			
			1,345	1,113	232	60
			Percent distribution			
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0–8 years . . . . .	2.2	2.1	2.0	1.6	4.2	7.1
9–11 years . . . . .	4.3	3.7	5.2	5.1	6.1	7.1
12 years . . . . .	52.1	47.0	60.8	62.3	53.3	54.8
13–15 years . . . . .	14.4	16.8	10.2	10.2	10.3	11.9
16 years or more . . . . .	27.1	30.4	21.7	20.8	26.2	19.0
Not stated . . . . .	2,989	1,305	1,480	1,357	123	204
			Number			
			1,480	1,357	123	204
			Percent distribution			
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0–8 years . . . . .	1.3	1.7	1.0	0.9	2.5	1.4
9–11 years . . . . .	8.3	9.4	7.3	7.5	5.1	10.1
12 years . . . . .	66.6	63.5	69.1	69.3	66.9	69.6
13–15 years . . . . .	5.3	6.8	3.7	3.8	2.5	10.1
16 years or more . . . . .	18.5	18.5	18.9	18.6	22.9	8.7

NOTE: The 11-State area includes Indiana, Kansas, Maine, Missouri, Montana, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 7. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous live births, according to race and age of woman: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and previous live births	All races	White	All other			
			Total	Black	Other races	Not stated
Number						
All ages . . . . .	297,251	186,581	100,104	92,832	7,272	10,566
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	50.3	57.2	37.3	36.6	47.1	51.8
1 previous live birth . . . . .	23.9	20.5	30.4	31.2	20.0	21.8
2 previous live births . . . . .	16.8	15.0	20.1	20.2	19.4	16.9
3 previous live births . . . . .	6.0	5.1	7.7	7.6	8.3	6.4
4 previous live births . . . . .	1.9	1.5	2.8	2.8	3.1	2.0
5 previous live births . . . . .	0.6	0.4	1.0	1.0	1.1	0.6
6 previous live births . . . . .	0.2	0.2	0.4	0.4	0.6	0.2
7 previous live births or more . . . . .	0.2	0.1	0.3	0.2	0.4	0.2
Number						
Under 15 years. . . . .	2,363	1,053	1,241	1,217	24	69
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	96.9	97.3	96.7	96.7	95.8	96.3
1 previous live birth . . . . .	2.4	2.0	2.7	2.7	4.2	3.7
2 previous live births . . . . .	0.5	0.7	0.3	0.3	—	—
3 previous live births . . . . .	0.2	0.1	0.2	0.3	—	—
4 previous live births . . . . .	—	—	—	—	—	—
5 previous live births . . . . .	—	—	—	—	—	—
6 previous live births . . . . .	—	—	—	—	—	—
7 previous live births or more . . . . .	—	—	—	—	—	—
Number						
15–17 years. . . . .	28,345	18,241	9,169	8,810	359	935
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	91.2	94.0	85.7	85.4	92.2	91.8
1 previous live birth . . . . .	7.9	5.5	12.6	12.9	6.9	7.8
2 previous live births . . . . .	0.8	0.5	1.6	1.6	0.9	0.4
3 previous live births . . . . .	0.1	0.1	0.1	0.1	—	—
4 previous live births . . . . .	0.0	—	0.0	0.0	—	—
5 previous live births . . . . .	0.0	—	0.0	0.0	—	—
6 previous live births . . . . .	—	—	—	—	—	—
7 previous live births or more . . . . .	—	—	—	—	—	—
Number						
18–19 years. . . . .	41,884	28,421	12,043	11,426	617	1,420
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	78.7	84.5	64.7	63.6	85.9	82.5
1 previous live birth . . . . .	17.2	12.7	27.7	28.6	11.3	15.3
2 previous live births . . . . .	3.6	2.5	6.4	6.6	2.6	1.7
3 previous live births . . . . .	0.5	0.2	1.0	1.0	0.2	0.4
4 previous live births . . . . .	0.1	0.0	0.2	0.2	—	—
5 previous live births . . . . .	0.0	0.0	0.0	0.0	—	—
6 previous live births . . . . .	—	—	—	—	—	—
7 previous live births or more . . . . .	0.0	0.0	—	—	—	0.1
Number						
20–24 years. . . . .	96,433	60,703	32,465	30,505	1,960	3,265
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	53.8	62.4	37.4	35.5	67.2	58.8
1 previous live birth . . . . .	28.3	23.3	38.0	39.2	19.6	25.2
2 previous live births . . . . .	13.6	11.2	18.1	18.7	9.6	12.1
3 previous live births . . . . .	3.3	2.5	4.8	5.0	2.9	3.4
4 previous live births . . . . .	0.7	0.5	1.2	1.2	0.5	0.4
5 previous live births . . . . .	0.2	0.1	0.3	0.3	0.3	0.1
6 previous live births . . . . .	0.0	0.0	0.1	0.1	—	—
7 previous live births or more . . . . .	0.0	0.0	0.1	0.1	—	—

See note at end of table.

**Table 7. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous live births, according to race and age of woman: 14-State area, 1988—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and previous live births	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
25-29 years. . . . .	64,341	39,216	22,890	21,117	1,773	2,235
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	34.7	41.4	23.1	21.4	43.7	37.7
1 previous live birth . . . . .	29.1	26.4	33.7	34.5	24.1	28.0
2 previous live births . . . . .	24.4	22.1	28.3	28.8	21.9	23.1
3 previous live births . . . . .	8.4	7.5	10.1	10.2	7.8	7.7
4 previous live births . . . . .	2.5	2.0	3.4	3.5	1.8	2.6
5 previous live births . . . . .	0.7	0.5	1.0	1.0	0.4	0.6
6 previous live births . . . . .	0.2	0.2	0.3	0.3	0.1	0.2
7 previous live births or more . . . . .	0.1	0.1	0.2	0.2	0.2	0.2
Number						
30-34 years. . . . .	36,731	22,210	13,119	11,767	1,352	1,402
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	23.8	29.4	14.2	13.4	21.2	25.6
1 previous live birth . . . . .	26.0	24.8	28.4	28.8	25.3	22.2
2 previous live births . . . . .	29.9	28.9	31.5	31.4	31.7	31.6
3 previous live births . . . . .	13.3	11.7	15.9	16.1	13.9	13.6
4 previous live births . . . . .	4.6	3.7	6.2	6.4	5.4	4.7
5 previous live births . . . . .	1.6	1.1	2.4	2.5	1.4	1.4
6 previous live births . . . . .	0.6	0.4	0.9	0.9	0.9	0.6
7 previous live births or more . . . . .	0.3	0.2	0.5	0.5	0.4	0.2
Number						
35-39 years. . . . .	18,186	11,500	5,962	5,182	780	724
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	18.1	22.5	9.6	9.3	11.2	18.3
1 previous live birth . . . . .	22.6	22.6	22.7	23.4	18.7	19.7
2 previous live births . . . . .	32.5	32.7	32.0	31.6	34.7	33.9
3 previous live births . . . . .	15.9	14.4	18.7	18.6	19.2	17.6
4 previous live births . . . . .	6.4	4.9	9.2	9.4	7.7	6.3
5 previous live births . . . . .	2.5	1.6	4.2	4.2	4.7	1.8
6 previous live births . . . . .	1.2	0.7	2.1	2.1	2.0	1.1
7 previous live births or more . . . . .	0.9	0.6	1.5	1.5	1.8	1.2
Number						
40 years and over . . . . .	5,019	3,321	1,510	1,238	272	188
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	13.4	15.7	8.6	8.8	7.4	11.1
1 previous live birth . . . . .	17.7	18.1	17.0	18.4	10.7	16.4
2 previous live births . . . . .	32.4	34.2	28.5	27.6	32.5	33.9
3 previous live births . . . . .	19.1	18.9	19.6	19.3	21.0	18.7
4 previous live births . . . . .	9.3	7.3	13.4	12.3	18.1	11.1
5 previous live births . . . . .	4.3	3.4	6.4	7.0	3.3	4.1
6 previous live births . . . . .	2.0	1.5	3.3	3.3	3.3	1.8
7 previous live births or more . . . . .	1.8	1.0	3.3	3.3	3.7	2.9
Number						
Not stated . . . . .	3,949	1,916	1,705	1,570	135	328
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	45.5	50.9	38.4	37.7	46.9	54.1
1 previous live birth . . . . .	24.7	21.1	29.1	29.7	21.5	21.5
2 previous live births . . . . .	18.7	17.7	20.0	20.1	19.2	17.2
3 previous live births . . . . .	7.4	6.6	8.6	8.4	10.8	5.2
4 previous live births . . . . .	2.2	2.4	2.1	2.3	—	1.7
5 previous live births . . . . .	1.0	0.9	1.1	1.2	—	0.4
6 previous live births . . . . .	0.3	0.3	0.3	0.2	1.5	—
7 previous live births or more . . . . .	0.2	0.2	0.4	0.4	—	—

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 8. Number of reported induced terminations of pregnancy by marital status and age of woman and percent distribution by previous live births, according to marital status and age of woman: 13-State area and New York City, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

<i>Age of woman and previous live births</i>	<i>All women</i>	<i>Married</i>	<i>Unmarried</i>	<i>Not stated</i>
			Number	
All ages . . . . .	244,566	48,842	187,698	8,026
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	49.0	18.2	57.1	47.4
1 previous live birth . . . . .	24.7	29.6	23.4	24.6
2 previous live births . . . . .	17.2	33.5	12.9	17.8
3 previous live births . . . . .	6.1	12.6	4.4	6.7
4 previous live births . . . . .	2.0	4.0	1.4	2.3
5 previous live births . . . . .	0.6	1.3	0.5	0.7
6 previous live births . . . . .	0.2	0.5	0.2	0.4
7 previous live births or more . . . . .	0.2	0.4	0.1	0.2
			Number	
Under 15 years. . . . .	2,057	33	1,987	37
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	96.9	71.4	97.2	100.0
1 previous live birth . . . . .	2.4	14.3	2.3	—
2 previous live births . . . . .	0.5	10.7	0.4	—
3 previous live births . . . . .	0.2	3.6	0.2	—
4 previous live births . . . . .	—	—	—	—
5 previous live births . . . . .	—	—	—	—
6 previous live births . . . . .	—	—	—	—
7 previous live births or more . . . . .	—	—	—	—
			Number	
15–17 years. . . . .	23,240	510	22,080	650
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	91.1	59.3	91.8	89.8
1 previous live birth . . . . .	8.0	35.2	7.4	9.1
2 previous live births . . . . .	0.8	5.1	0.7	0.9
3 previous live births . . . . .	0.1	0.2	0.1	0.2
4 previous live births . . . . .	0.0	—	0.0	—
5 previous live births . . . . .	0.0	0.2	—	—
6 previous live births . . . . .	—	—	—	—
7 previous live births or more . . . . .	—	—	—	—
			Number	
18–19 years. . . . .	33,626	1,918	30,744	964
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	77.8	38.6	80.2	78.6
1 previous live birth . . . . .	17.9	45.4	16.3	16.4
2 previous live births . . . . .	3.7	14.4	3.1	4.0
3 previous live births . . . . .	0.4	1.3	0.4	0.6
4 previous live births . . . . .	0.1	0.2	0.1	0.5
5 previous live births . . . . .	0.0	0.1	0.0	—
6 previous live births . . . . .	—	—	—	—
7 previous live births or more . . . . .	0.0	—	0.0	—
			Number	
20–24 years. . . . .	78,364	12,260	63,640	2,464
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	52.1	24.3	57.4	52.3
1 previous live birth . . . . .	29.5	38.9	27.7	28.6
2 previous live births . . . . .	14.1	28.5	11.3	14.2
3 previous live births . . . . .	3.4	6.7	2.8	3.6
4 previous live births . . . . .	0.7	1.4	0.5	1.0
5 previous live births . . . . .	0.1	0.2	0.1	0.2
6 previous live births . . . . .	0.0	0.0	0.0	1.0
7 previous live births or more . . . . .	0.0	0.0	0.0	—

See note at end of table.

**Table 8. Number of reported induced terminations of pregnancy by marital status and age of woman and percent distribution by previous live births, according to marital status and age of woman: 13-State area and New York City, 1988—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

<i>Age of woman and previous live births</i>	<i>All women</i>	<i>Married</i>	<i>Unmarried</i>	<i>Not stated</i>
			Number	
25–29 years . . . . .	53,705	14,531	37,414	1,760
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	33.6	17.7	39.7	36.5
1 previous live birth . . . . .	29.7	29.7	29.8	29.0
2 previous live births . . . . .	24.7	35.3	20.6	23.0
3 previous live births . . . . .	8.5	12.6	6.9	7.9
4 previous live births . . . . .	2.5	3.5	2.1	2.7
5 previous live births . . . . .	0.7	0.8	0.6	0.5
6 previous live births . . . . .	0.2	0.3	0.2	0.2
7 previous live births or more . . . . .	0.1	0.1	0.1	0.1
			Number	
30–34 years . . . . .	31,078	10,839	19,121	1,118
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	23.4	12.7	29.4	24.7
1 previous live birth . . . . .	26.4	23.8	27.8	26.8
2 previous live births . . . . .	29.9	38.1	25.3	28.8
3 previous live births . . . . .	13.3	16.8	11.3	13.4
4 previous live births . . . . .	4.6	5.7	4.1	4.0
5 previous live births . . . . .	1.5	1.9	1.3	1.7
6 previous live births . . . . .	0.6	0.6	0.6	0.3
7 previous live births or more . . . . .	0.3	0.4	0.3	0.4
			Number	
35–39 years . . . . .	15,232	6,113	8,567	552
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	17.9	10.4	23.2	18.0
1 previous live birth . . . . .	22.6	20.0	24.6	22.1
2 previous live births . . . . .	32.5	38.4	28.3	31.3
3 previous live births . . . . .	15.9	18.6	14.0	17.7
4 previous live births . . . . .	6.4	7.4	5.7	5.6
5 previous live births . . . . .	2.5	2.8	2.4	2.1
6 previous live births . . . . .	1.2	1.1	1.2	2.3
7 previous live births or more . . . . .	1.0	1.3	0.7	1.0
			Number	
40 years and over . . . . .	4,160	1,939	2,055	166
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	13.0	8.3	17.7	10.5
1 previous live birth . . . . .	18.3	16.0	20.5	17.9
2 previous live births . . . . .	31.7	35.1	28.3	34.6
3 previous live births . . . . .	18.9	21.1	17.0	16.7
4 previous live births . . . . .	9.7	10.5	8.8	9.9
5 previous live births . . . . .	4.4	5.0	3.7	4.9
6 previous live births . . . . .	2.1	2.2	2.0	2.5
7 previous live births or more . . . . .	1.8	1.7	1.8	3.1
			Number	
Not stated . . . . .	3,104	699	2,090	315
			Percent distribution	
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	40.9	16.8	48.7	42.7
1 previous live birth . . . . .	27.0	31.6	25.5	26.5
2 previous live births . . . . .	20.3	33.2	16.0	20.1
3 previous live births . . . . .	7.8	12.6	6.6	5.1
4 previous live births . . . . .	2.3	2.4	2.0	4.3
5 previous live births . . . . .	1.1	2.2	0.7	0.9
6 previous live births . . . . .	0.3	0.7	0.1	0.4
7 previous live births or more . . . . .	0.3	0.4	0.2	–

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 9. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous induced terminations, according to race and age of woman: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and previous induced terminations	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All ages . . . . .	297,251	186,581	100,104	92,832	7,272	10,566
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	55.9	60.4	47.8	47.0	58.0	53.5
1 previous induced termination . . . . .	27.0	25.5	29.5	29.9	25.1	28.0
2 previous induced terminations . . . . .	10.7	9.0	13.8	14.0	10.6	11.5
3 previous induced terminations or more . . . . .	6.4	5.1	8.8	9.0	6.2	7.0
Number						
Under 15 years . . . . .	2,363	1,053	1,241	1,217	24	69
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	92.1	92.6	91.9	91.8	95.8	87.5
1 previous induced termination . . . . .	7.0	6.9	7.1	7.1	4.2	7.1
2 previous induced terminations . . . . .	0.7	0.4	0.7	0.8	—	3.6
3 previous induced terminations or more . . . . .	0.3	0.1	0.3	0.3	—	1.8
Number						
15–17 years . . . . .	28,345	18,241	9,169	8,810	359	935
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	84.6	87.6	79.0	78.8	84.5	81.0
1 previous induced termination . . . . .	13.3	11.0	17.5	17.8	12.1	16.8
2 previous induced terminations . . . . .	1.8	1.1	3.0	3.1	2.9	2.0
3 previous induced terminations or more . . . . .	0.3	0.2	0.4	0.4	0.6	0.1
Number						
18–19 years . . . . .	41,884	28,421	12,043	11,426	617	1,420
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	73.7	77.5	65.2	64.5	78.2	71.1
1 previous induced termination . . . . .	20.9	18.5	26.3	26.7	17.5	23.2
2 previous induced terminations . . . . .	4.3	3.3	6.5	6.7	2.8	4.6
3 previous induced terminations or more . . . . .	1.1	0.7	2.0	2.0	1.5	1.2
Number						
20–24 years . . . . .	96,433	60,703	32,465	30,505	1,960	3,265
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	55.4	59.8	47.4	46.3	64.5	53.7
1 previous induced termination . . . . .	29.3	27.6	32.2	32.7	24.7	30.1
2 previous induced terminations . . . . .	10.5	8.8	13.6	14.0	7.8	11.0
3 previous induced terminations or more . . . . .	4.8	3.8	6.8	7.0	3.0	5.2
Number						
25–29 years . . . . .	64,341	39,216	22,890	21,117	1,773	2,235
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	43.2	47.0	37.0	35.5	54.7	41.1
1 previous induced termination . . . . .	31.5	31.3	32.0	32.4	26.9	30.9
2 previous induced terminations . . . . .	15.2	13.6	17.9	18.5	11.7	16.3
3 previous induced terminations or more . . . . .	10.0	8.1	13.1	13.7	6.8	11.7

See note at end of table.

**Table 9. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous induced terminations, according to race and age of woman: 14-State area, 1988—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and previous induced terminations	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
30–34 years . . . . .	36,731	22,210	13,119	11,767	1,352	1,402
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	41.4	45.6	34.5	32.9	48.2	38.9
1 previous induced termination . . . . .	30.7	30.4	31.0	31.4	27.4	32.4
2 previous induced terminations . . . . .	15.7	13.6	19.2	19.7	14.2	16.2
3 previous induced terminations or more . . . . .	12.3	10.4	15.4	16.0	10.3	12.5
Number						
35–39 years . . . . .	18,186	11,500	5,962	5,182	780	724
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	45.0	50.6	34.5	33.2	43.3	43.1
1 previous induced termination . . . . .	29.1	27.5	31.9	32.2	29.5	32.1
2 previous induced terminations . . . . .	14.9	12.8	18.9	19.2	16.8	15.0
3 previous induced terminations or more . . . . .	11.0	9.1	14.8	15.4	10.4	9.9
Number						
40 years and over . . . . .	5,019	3,321	1,510	1,238	272	188
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	49.6	56.4	34.5	33.1	41.0	50.0
1 previous induced termination . . . . .	27.2	25.4	31.9	32.5	29.1	20.8
2 previous induced terminations . . . . .	12.7	10.6	17.1	17.4	16.1	16.2
3 previous induced terminations or more . . . . .	10.4	7.6	16.4	17.0	13.8	13.0
Number						
Not stated . . . . .	3,949	1,916	1,705	1,570	135	328
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	50.9	56.2	42.8	41.7	56.2	66.8
1 previous induced termination . . . . .	26.2	25.3	28.3	28.6	25.4	17.7
2 previous induced terminations . . . . .	13.4	10.5	17.0	17.2	14.6	10.2
3 previous induced terminations or more . . . . .	9.6	8.1	11.9	12.6	3.8	5.3

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 10. Number of reported induced terminations of pregnancy by race of woman and percent distribution by period of gestation, according to race of woman: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
Total . . . . .	297,251	186,581	100,104	92,832	7,272	10,566
Percent distribution						
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	11.1	11.6	10.2	9.9	15.2	10.1
7 weeks . . . . .	15.3	16.1	13.9	13.5	19.1	13.8
8 weeks . . . . .	19.3	20.3	17.6	17.3	20.9	19.6
9 weeks . . . . .	16.2	16.5	15.5	15.5	15.3	16.4
10 weeks . . . . .	12.6	12.5	12.7	12.9	10.9	12.2
11 weeks . . . . .	9.1	8.9	9.6	9.8	7.3	9.2
12 weeks . . . . .	5.3	5.0	6.0	6.2	3.9	5.7
13 weeks . . . . .	3.0	2.6	3.5	3.6	2.2	3.6
14 weeks . . . . .	1.9	1.7	2.3	2.4	1.1	2.3
15 weeks . . . . .	1.3	1.1	1.6	1.7	0.9	1.4
16 weeks . . . . .	1.0	0.8	1.4	1.4	0.5	1.1
17 weeks . . . . .	0.8	0.6	1.1	1.2	0.5	1.1
18 weeks . . . . .	0.8	0.6	1.1	1.2	0.6	0.8
19 weeks . . . . .	0.6	0.5	0.9	0.9	0.4	0.8
20 weeks . . . . .	0.5	0.4	0.8	0.8	0.3	0.5
21 weeks or more . . . . .	1.2	1.0	1.7	1.7	1.0	1.5

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 11. Number of reported induced terminations of pregnancy by age of woman and percent distribution by period of gestation, according to age of woman: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All ages	Under 14 years		15-19 years						20-39 years				40 years and over	Not stated
		14 years	14 years	Total	15 years	16 years	17 years	18 years	19 years	20-24 years	25-29 years	30-34 years	35-39 years		
Number															
Total . . . . .	297,251	626	1,737	70,229	4,533	9,306	14,506	20,963	20,921	96,433	64,341	36,731	18,186	5,019	3,949
Percent distribution															
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	11.1	6.9	6.9	7.5	6.6	6.1	6.9	8.0	8.2	10.0	12.5	14.7	16.8	17.0	13.0
7 weeks . . . . .	15.3	7.1	10.1	11.9	9.3	10.2	11.0	12.5	13.1	14.6	16.8	18.4	19.8	18.1	16.3
8 weeks . . . . .	19.3	13.8	12.5	17.1	14.7	15.8	16.7	17.5	18.1	19.3	20.4	21.2	21.2	22.5	18.4
9 weeks . . . . .	16.2	15.6	14.2	16.5	15.8	15.6	16.2	16.4	17.2	16.5	16.1	15.7	15.2	15.3	14.9
10 weeks . . . . .	12.6	10.9	15.1	14.0	14.1	14.5	14.7	13.8	13.4	13.1	12.1	11.0	9.9	10.1	11.5
11 weeks . . . . .	9.1	11.1	9.7	10.9	11.3	11.3	10.8	11.2	10.3	9.6	8.4	7.6	6.2	6.1	7.6
12 weeks . . . . .	5.3	6.3	6.6	6.8	8.0	7.4	6.9	6.8	6.2	5.6	4.7	3.9	3.7	3.7	5.5
13 weeks . . . . .	3.0	6.9	4.8	4.0	4.6	4.4	4.5	3.7	3.7	3.1	2.5	2.1	1.8	1.5	3.0
14 weeks . . . . .	1.9	4.5	4.1	2.6	3.5	3.3	2.6	2.3	2.3	1.9	1.6	1.2	1.1	1.3	1.9
15 weeks . . . . .	1.3	2.3	2.8	1.8	2.1	2.1	2.0	1.7	1.4	1.3	1.1	0.8	0.7	0.7	1.3
16 weeks . . . . .	1.0	2.4	2.3	1.5	1.9	1.8	1.6	1.3	1.3	1.0	0.8	0.7	0.6	0.6	1.3
17 weeks . . . . .	0.8	2.1	2.1	1.1	1.4	1.5	1.2	1.1	0.9	0.8	0.6	0.6	0.6	0.7	1.1
18 weeks . . . . .	0.8	2.4	2.1	1.1	1.5	1.4	1.0	1.0	0.9	0.8	0.8	0.5	0.7	0.6	1.2
19 weeks . . . . .	0.6	2.1	1.7	0.9	1.5	1.2	1.0	0.7	0.7	0.6	0.5	0.4	0.4	0.4	0.6
20 weeks . . . . .	0.5	1.3	1.4	0.7	1.1	0.8	0.8	0.6	0.6	0.5	0.4	0.3	0.4	0.4	0.9
21 weeks or more . . . . .	1.2	4.3	3.7	1.7	2.7	2.5	1.9	1.4	1.4	1.2	1.0	0.8	0.8	1.0	1.6

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 12. Number of reported induced terminations of pregnancy by years of school completed, race, and age of woman and percent distribution by period of gestation, according to years of school completed, race, and age of woman: 11-State area and New York City, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation, <sup>1</sup> age, and race of woman	Total	Years of school completed					
		0-8 years	9-11 years	12 years	13-15 years	16 years or more	Not stated
All races <sup>2</sup>							
All ages . . . . .	224,529	3,466	27,898	116,410	36,457	30,968	9,330
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	11.4	7.4	7.4	11.2	11.2	16.1	13.4
7-8 weeks . . . . .	33.8	28.7	27.8	32.4	37.3	40.9	33.1
9-12 weeks . . . . .	43.3	49.5	50.8	43.4	45.1	34.9	38.9
13-15 weeks . . . . .	6.1	8.3	8.3	6.6	4.2	3.9	6.4
16-20 weeks . . . . .	4.0	4.7	4.5	4.7	1.7	3.0	5.8
21 weeks or more . . . . .	1.5	1.5	1.2	1.8	0.6	1.3	2.3
Number							
10-17 years . . . . .	23,392	1,731	12,747	7,458	99	-	1,357
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	6.8	5.7	6.9	6.8	7.1	-	6.6
7-8 weeks . . . . .	25.4	24.1	26.6	24.0	31.3	-	23.4
9-12 weeks . . . . .	48.2	51.7	51.4	43.3	56.6	-	40.8
13-15 weeks . . . . .	9.7	10.1	8.7	11.1	4.0	-	11.5
16-20 weeks . . . . .	7.0	6.3	4.9	10.1	1.0	-	12.6
21 weeks or more . . . . .	2.9	2.0	1.6	4.8	-	-	5.1
Number							
18-24 years . . . . .	102,386	721	9,740	58,002	20,330	10,042	3,551
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	9.8	6.4	6.7	9.5	10.0	13.0	12.1
7-8 weeks . . . . .	31.9	28.2	27.2	30.2	36.3	38.1	30.8
9-12 weeks . . . . .	45.8	51.7	51.9	46.0	46.6	37.7	43.1
13-15 weeks . . . . .	6.7	7.5	8.7	7.3	4.6	5.2	6.5
16-20 weeks . . . . .	4.3	4.9	4.5	5.1	1.9	3.9	5.5
21 weeks or more . . . . .	1.6	1.3	1.0	1.9	0.6	2.1	1.9
Number							
25 years and over . . . . .	95,762	978	5,188	49,165	15,887	20,431	4,113
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	14.3	10.7	9.7	13.7	12.9	17.6	16.6
7-8 weeks . . . . .	37.8	37.0	32.3	36.3	38.5	42.3	38.1
9-12 weeks . . . . .	39.6	43.9	47.4	40.5	43.0	33.6	34.9
13-15 weeks . . . . .	4.5	5.9	6.5	5.1	3.6	3.2	4.7
16-20 weeks . . . . .	2.8	1.8	3.4	3.3	1.4	2.4	3.9
21 weeks or more . . . . .	1.0	0.7	0.8	1.1	0.5	0.9	1.8
Number							
Not stated . . . . .	2,989	36	223	1,785	141	495	309
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	12.6	13.9	6.8	12.2	8.6	15.9	15.6
7-8 weeks . . . . .	33.7	33.3	23.5	33.3	37.9	36.9	36.6
9-12 weeks . . . . .	38.4	47.2	47.5	39.0	40.7	33.3	33.9
13-15 weeks . . . . .	6.9	5.6	12.7	6.8	8.6	4.1	6.8
16-20 weeks . . . . .	6.4	-	7.7	6.8	3.6	6.5	5.1
21 weeks or more . . . . .	2.1	-	1.8	1.9	0.7	3.3	2.0

See footnotes at end of table.

**Table 12. Number of reported induced terminations of pregnancy by years of school completed, race, and age of woman and percent distribution by period of gestation, according to years of school completed, race, and age of woman: 11-State area and New York City, 1988—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation, <sup>1</sup> age, and race of woman	Total	Years of school completed					Not stated
		0-8 years	9-11 years	12 years	13-15 years	16 years or more	
<b>White</b>							
All ages . . . . .	134,181	2,072	19,035	64,998	24,433	18,329	5,314
Number							
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	12.0	7.7	7.4	11.7	12.2	17.4	14.9
7-8 weeks . . . . .	35.4	29.3	28.8	34.1	39.2	42.6	35.1
9-12 weeks . . . . .	43.0	49.8	51.0	43.5	43.0	33.4	38.1
13-15 weeks . . . . .	5.3	7.8	7.9	5.8	3.6	3.0	5.3
16-20 weeks . . . . .	3.1	4.0	3.7	3.5	1.4	2.3	4.7
21 weeks or more . . . . .	1.2	1.5	1.2	1.4	0.6	1.3	1.9
Number							
10-17 years . . . . .	14,098	879	8,749	3,757	65	—	648
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	7.2	5.7	7.1	7.7	7.7	—	7.1
7-8 weeks . . . . .	27.4	24.5	27.9	27.2	32.3	—	26.2
9-12 weeks . . . . .	49.3	52.8	51.2	44.8	56.9	—	44.3
13-15 weeks . . . . .	8.7	9.5	8.2	9.6	3.1	—	9.6
16-20 weeks . . . . .	5.2	5.6	4.2	7.1	—	—	9.0
21 weeks or more . . . . .	2.2	1.9	1.5	3.6	—	—	3.9
Number							
18-24 years . . . . .	62,929	541	6,830	33,441	14,125	5,889	2,103
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	10.3	6.7	6.7	10.1	10.7	13.8	13.2
7-8 weeks . . . . .	33.8	28.1	28.4	31.9	38.4	40.0	32.6
9-12 weeks . . . . .	45.6	53.0	52.3	46.3	44.6	37.3	42.3
13-15 weeks . . . . .	5.8	7.2	8.1	6.4	4.1	4.1	5.3
16-20 weeks . . . . .	3.2	3.9	3.7	3.8	1.6	3.0	5.1
21 weeks or more . . . . .	1.2	1.1	0.9	1.5	0.6	1.7	1.5
Number							
25 years and over. . . . .	55,849	631	3,343	27,038	10,161	12,218	2,458
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	15.2	11.2	9.7	14.3	14.4	19.1	18.4
7-8 weeks . . . . .	39.3	37.1	32.4	37.6	40.4	43.9	39.2
9-12 weeks . . . . .	38.5	42.7	48.0	40.1	40.7	31.7	32.9
13-15 weeks . . . . .	3.8	6.1	6.3	4.4	2.9	2.5	4.2
16-20 weeks . . . . .	2.2	1.9	2.6	2.6	1.2	1.9	3.5
21 weeks or more . . . . .	0.9	1.1	0.9	0.9	0.5	1.0	1.8
Number							
Not stated. . . . .	1305	21	113	762	82	222	105
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.7	9.5	8.8	13.5	8.6	19.0	13.7
7-8 weeks . . . . .	35.0	28.6	23.9	34.0	40.7	38.5	44.1
9-12 weeks . . . . .	37.8	57.1	46.9	38.7	39.5	28.5	36.3
13-15 weeks . . . . .	6.0	4.8	14.2	5.2	8.6	4.1	4.9
16-20 weeks . . . . .	5.6	—	4.4	6.6	1.2	6.8	1.0
21 weeks or more . . . . .	1.9	—	1.8	2.0	1.2	3.2	—

See footnotes at end of table.

**Table 12. Number of reported induced terminations of pregnancy by years of school completed, race, and age of woman and percent distribution by period of gestation, according to years of school completed, race, and age of woman: 11-State area and New York City, 1988—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation, <sup>1</sup> age, and race of woman	Total	Years of school completed						Not stated
		0-8 years	9-11 years	12 years	13-15 years	16 years or more		
<b>Black</b>				<b>Number</b>				
All ages . . . . .	80,922	1,185	8,002	46,946	10,966	11,034	2,789	
				<b>Percent distribution</b>				
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	10.0	6.2	7.0	10.0	8.6	13.7	11.1	
7-8 weeks . . . . .	30.6	26.2	25.0	29.8	32.6	37.4	28.3	
9-12 weeks . . . . .	44.4	50.2	50.8	43.6	50.4	38.0	40.3	
13-15 weeks . . . . .	7.5	9.9	9.6	8.0	5.5	5.4	8.6	
16-20 weeks . . . . .	5.5	5.8	6.3	6.3	2.3	4.1	8.4	
21 weeks or more . . . . .	1.9	1.8	1.4	2.3	0.6	1.4	3.4	
				<b>Number</b>				
10-17 years . . . . .	8,668	818	3,704	3,495	32	-	619	
				<b>Percent distribution</b>				
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	6.0	5.6	6.3	5.8	3.1	-	5.7	
7-8 weeks . . . . .	22.1	23.7	23.7	20.3	31.2	-	20.3	
9-12 weeks . . . . .	46.6	51.1	51.6	41.8	56.2	-	37.7	
13-15 weeks . . . . .	11.4	10.6	10.1	12.8	6.2	-	13.4	
16-20 weeks . . . . .	9.9	6.7	6.4	13.3	3.1	-	16.4	
21 weeks or more . . . . .	3.9	2.2	1.9	6.0	-	-	6.4	
				<b>Number</b>				
18-24 years . . . . .	36,031	137	2,641	22,833	5,662	3,701	1,057	
				<b>Percent distribution</b>				
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	8.6	4.4	6.8	8.6	7.6	11.3	11.2	
7-8 weeks . . . . .	28.4	28.7	23.9	27.5	30.4	34.5	27.0	
9-12 weeks . . . . .	46.6	49.3	51.3	45.9	52.7	39.4	43.4	
13-15 weeks . . . . .	8.2	8.8	10.4	8.7	5.9	6.8	8.7	
16-20 weeks . . . . .	6.1	6.6	6.6	7.0	2.8	5.4	6.8	
21 weeks or more . . . . .	2.1	2.2	1.1	2.5	0.7	2.7	3.0	
				<b>Number</b>				
25 years and over . . . . .	34,866	219	1,560	19,722	5,223	7,093	1,049	
				<b>Percent distribution</b>				
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	12.4	9.3	9.2	12.3	9.8	15.1	13.9	
7-8 weeks . . . . .	35.1	32.4	30.3	34.1	34.9	39.1	34.4	
9-12 weeks . . . . .	41.8	48.6	47.9	41.4	47.9	37.2	38.9	
13-15 weeks . . . . .	5.8	7.9	7.0	6.3	5.2	4.7	5.6	
16-20 weeks . . . . .	3.8	1.9	5.0	4.3	1.8	3.3	5.3	
21 weeks or more . . . . .	1.1	-	0.5	1.5	0.5	0.8	1.8	
				<b>Number</b>				
Not stated. . . . .	1,357	11	97	896	49	240	64	
				<b>Percent distribution</b>				
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	10.8	9.1	5.2	10.8	10.2	12.2	14.3	
7-8 weeks . . . . .	31.6	54.5	21.6	31.9	32.7	34.2	27.0	
9-12 weeks . . . . .	40.3	27.3	49.5	40.0	44.9	38.8	34.9	
13-15 weeks . . . . .	7.7	9.1	11.3	8.3	4.1	4.6	7.9	
16-20 weeks . . . . .	7.5	-	10.3	7.3	8.2	7.2	7.9	
21 weeks or more . . . . .	2.2	-	2.1	1.7	-	3.0	7.9	

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

<sup>2</sup>Includes races other than white and black.

NOTE: The 11-State area includes Indiana, Kansas, Maine, Missouri, Montana, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 13. Number of reported induced terminations of pregnancy by procedure and percent distribution by procedure, according to period of gestation: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All procedures	Suction curettage	Sharp curettage	Saline instillation	Number			
					Prostaglandin instillation	Hysterotomy	Hysterectomy	Other
Total <sup>2</sup>	297,251	285,317	2,428	2,145	742	17	25	2,368
Percent distribution								
All periods of gestation	100.0	97.4	0.8	0.7	0.3	0.0	0.0	0.8
6 weeks or less	100.0	98.2	0.8	0.0	0.0	—	0.0	0.9
7 weeks	100.0	97.6	0.8	0.0	0.0	—	—	1.6
8 weeks	100.0	98.6	0.6	0.0	0.0	0.0	0.0	0.8
9 weeks	100.0	99.0	0.7	0.0	0.0	0.0	0.0	0.2
10 weeks	100.0	99.0	0.8	0.0	0.0	0.0	0.0	0.1
11 weeks	100.0	98.9	0.8	0.1	0.0	0.0	—	0.1
12 weeks	100.0	98.4	1.0	0.3	0.1	0.0	0.0	0.2
13 weeks	100.0	97.4	1.2	0.6	0.2	0.0	0.0	0.5
14 weeks	100.0	95.2	1.5	1.7	0.8	—	0.0	0.8
15 weeks	100.0	92.5	1.5	3.3	1.5	0.0	—	1.2
16 weeks	100.0	86.9	2.2	5.5	3.1	0.0	0.1	2.2
17 weeks	100.0	80.2	1.5	9.6	4.1	—	—	4.7
18 weeks	100.0	75.7	1.5	14.4	4.4	0.1	—	3.9
19 weeks	100.0	74.0	1.0	14.5	5.1	—	—	5.5
20 weeks	100.0	74.7	1.1	16.2	3.5	—	0.1	4.5
21 weeks or more	100.0	77.5	1.3	13.2	3.4	0.1	0.1	4.5
Not stated	100.0	94.6	2.0	2.4	0.7	—	—	0.4

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

<sup>2</sup>Includes procedure not stated.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 14. Number and percent distribution of reported induced terminations of pregnancy by metropolitan-nonmetropolitan residence, race, and age of woman: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman	All areas			Metropolitan areas			Nonmetropolitan areas		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
Number									
All ages	297,251	186,581	92,832	256,473	153,366	87,185	40,778	33,215	5,647
Under 14 years	626	220	380	529	166	339	97	54	41
14 years	1,737	833	837	1,444	619	762	293	214	75
15-19 years	70,229	46,662	20,236	58,559	36,888	18,797	11,670	9,774	1,439
15 years	4,533	2,617	1,716	3,701	1,973	1,559	832	644	157
16 years	9,306	5,989	2,898	7,672	4,638	2,676	1,634	1,351	222
17 years	14,506	9,635	4,196	12,014	7,537	3,901	2,492	2,098	295
18 years	20,963	14,332	5,630	17,510	11,388	5,257	3,453	2,944	373
19 years	20,921	14,089	5,796	17,662	11,352	5,404	3,259	2,737	392
20-24 years	96,433	60,703	30,505	83,630	50,297	28,650	12,803	10,406	1,855
25-29 years	64,341	39,216	21,117	56,499	32,993	19,930	7,842	6,223	1,187
30-34 years	36,731	22,210	11,767	32,090	18,542	11,083	4,641	3,668	684
35-39 years	18,186	11,500	5,182	15,735	9,448	4,894	2,451	2,052	288
40 years and over	5,019	3,321	1,238	4,267	2,684	1,164	752	637	74
Not stated	3,949	1,916	1,570	3,720	1,729	1,566	229	187	4
Percent distribution									
All ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 14 years	0.2	0.1	0.4	0.2	0.1	0.4	0.2	0.2	0.7
14 years	0.6	0.5	0.9	0.6	0.4	0.9	0.7	0.6	1.3
15-19 years	23.9	25.3	22.2	23.2	24.3	22.0	28.8	29.6	25.5
15 years	1.5	1.4	1.9	1.5	1.3	1.8	2.1	1.9	2.8
16 years	3.2	3.2	3.2	3.0	3.1	3.1	4.0	4.1	3.9
17 years	4.9	5.2	4.6	4.8	5.0	4.6	6.1	6.4	5.2
18 years	7.1	7.8	6.2	6.9	7.5	6.1	8.5	8.9	6.6
19 years	7.1	7.6	6.4	7.0	7.5	6.3	8.0	8.3	6.9
20-24 years	32.9	32.9	33.4	33.1	33.2	33.5	31.6	31.5	32.9
25-29 years	21.9	21.2	23.1	22.4	21.8	23.3	19.3	18.8	21.0
30-34 years	12.5	12.0	12.9	12.7	12.2	12.9	11.4	11.1	12.7
35-39 years	6.2	6.2	5.7	6.2	6.2	5.7	6.0	6.2	5.1
40 years and over	1.7	1.8	1.4	1.7	1.8	1.4	1.9	1.9	1.3

<sup>1</sup>Includes races other than white and black.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 15. Number of reported induced terminations of pregnancy by residence status of woman and percent distribution by period of gestation, according to residence status of woman: 14-State area, 1988**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All induced terminations occurring in area	Induced terminations occurring in area among U.S. residents	Induced terminations occurring in State of residence		Induced terminations among interstate nonresidents	Induced terminations among nonresidents of United States	
			Total	Occurring in county of residence			Not occurring in county of residence
Total . . . . .	298,078	297,251	273,672	186,853	86,819	23,579	827
				Number			
				Percent distribution			
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	11.1	11.1	11.3	12.0	9.7	9.0	6.4
7 weeks . . . . .	15.3	15.3	15.4	16.0	14.1	13.8	10.6
8 weeks . . . . .	19.3	19.3	19.5	19.5	19.4	17.9	14.2
9 weeks . . . . .	16.2	16.2	16.3	15.8	17.2	15.2	12.9
10 weeks . . . . .	12.6	12.6	12.6	12.2	13.6	12.1	14.9
11 weeks . . . . .	9.1	9.1	9.1	8.6	10.2	9.0	10.9
12 weeks . . . . .	5.3	5.3	5.3	5.2	5.7	5.2	9.7
13 weeks . . . . .	3.0	3.0	3.0	2.9	3.1	3.2	4.5
14 weeks . . . . .	1.9	1.9	1.9	1.9	1.8	2.1	3.6
15 weeks . . . . .	1.3	1.3	1.2	1.3	1.1	1.6	2.3
16 weeks . . . . .	1.0	1.0	1.0	1.0	0.9	1.4	2.3
17 weeks . . . . .	0.8	0.8	0.8	0.8	0.7	1.3	1.6
18 weeks . . . . .	0.8	0.8	0.7	0.7	0.7	1.6	1.3
19 weeks . . . . .	0.6	0.6	0.6	0.6	0.5	1.3	1.2
20 weeks . . . . .	0.5	0.5	0.5	0.5	0.4	1.3	0.8
21 weeks or more . . . . .	1.2	1.2	1.0	1.0	1.0	4.1	2.7

<sup>1</sup> Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 16. Number of reported induced terminations of pregnancy in the reporting States and New York City, by place of residence and place of occurrence: United States, each State, New York City, and specified places outside the United States, 1988

[Data include only induced terminations of pregnancy occurring in the reporting area]

Place of residence	Place of occurrence																
	Total	New York															
		Colorado	Indiana	Kansas	Maine	Missouri	Montana	Total	Upstate New York	New York City	Oregon	Rhode Island	South Carolina	Tennessee	Utah	Vermont	Virginia
All places of residence . . . . .	298,078	12,425	12,999	7,534	4,723	17,382	2,866	141,439	52,766	88,673	13,309	7,616	14,133	21,592	4,722	3,309	34,029
United States . . . . .	297,251	12,422	12,999	7,534	4,554	17,381	2,453	141,223	52,685	88,538	13,300	7,615	14,130	21,591	4,721	3,308	34,020
Alabama . . . . .	160	—	1	—	—	2	1	1	1	—	—	2	6	144	—	—	3
Alaska . . . . .	17	4	—	—	—	—	—	—	—	—	12	—	—	1	—	—	—
Arizona . . . . .	35	25	1	—	—	—	—	1	1	—	2	—	—	—	5	—	1
Arkansas . . . . .	886	—	1	6	—	100	—	1	—	1	—	—	1	775	—	—	1
California . . . . .	149	13	2	1	—	2	3	16	5	11	84	3	7	2	7	1	8
Colorado . . . . .	11,524	11,506	1	1	2	1	—	2	—	2	2	1	—	—	4	1	3
Connecticut . . . . .	852	3	—	—	3	2	—	775	288	487	—	56	1	—	—	5	7
Delaware . . . . .	11	—	—	—	—	—	—	9	2	7	—	—	—	—	—	—	2
District of Columbia . . . . .	334	—	—	—	—	—	—	66	2	64	—	—	—	1	—	—	267
Florida . . . . .	94	5	2	1	—	7	—	33	17	16	1	1	14	14	1	1	11
Georgia . . . . .	881	—	3	—	—	3	—	6	3	3	—	—	338	523	—	—	8
Hawaii . . . . .	7	—	—	—	—	1	—	2	2	—	2	—	—	—	1	—	1
Idaho . . . . .	420	7	—	—	—	—	22	—	—	—	29	—	1	—	360	—	1
Illinois . . . . .	1,706	2	349	5	—	1,316	—	15	2	13	—	—	3	11	—	—	5
Indiana . . . . .	12,448	—	12,408	2	—	24	—	2	1	1	—	1	2	7	—	—	2
Iowa . . . . .	54	2	1	35	—	11	1	—	—	—	—	—	1	2	—	—	1
Kansas . . . . .	4,764	22	—	4,373	1	366	—	1	1	—	—	—	1	—	—	—	8
Kentucky . . . . .	777	—	6	—	1	57	—	—	—	—	—	—	3	702	—	—	8
Louisiana . . . . .	18	—	1	1	—	4	1	4	1	3	1	—	—	4	—	—	2
Maine . . . . .	3,882	—	—	—	3,858	—	—	16	1	15	—	3	—	—	—	3	2
Maryland . . . . .	843	—	—	—	2	1	—	198	5	193	—	—	2	—	—	—	640
Massachusetts . . . . .	2,087	—	—	1	259	—	—	120	30	90	—	1,659	1	1	—	43	3
Michigan . . . . .	144	—	122	2	1	—	—	3	2	1	1	—	5	2	—	—	8
Minnesota . . . . .	10	3	—	1	—	3	—	—	—	—	—	—	2	1	—	—	—
Mississippi . . . . .	1,123	—	—	—	—	7	—	—	—	—	—	—	—	1,112	—	—	4
Missouri . . . . .	18,497	1	3	2,981	—	15,415	1	3	—	3	1	2	3	85	—	—	2
Montana . . . . .	2,169	12	—	2	—	—	2,150	—	—	—	1	—	—	—	4	—	—
Nebraska . . . . .	197	139	—	55	—	1	—	—	—	—	—	—	—	—	1	—	—
Nevada . . . . .	63	—	—	—	—	—	—	—	—	—	—	—	2	1	60	—	—
New Hampshire . . . . .	721	—	—	—	395	—	—	18	4	14	—	5	—	1	—	302	—
New Jersey . . . . .	1,913	—	1	—	1	2	—	1,890	181	1,709	—	4	1	1	1	—	12
New Mexico . . . . .	251	241	—	2	2	2	—	2	2	—	1	—	1	—	—	—	—
New York . . . . .	137,164	4	2	—	5	2	—	136,489	51,106	85,383	1	6	6	2	2	603	42
Upstate New York . . . . .	53,508	3	1	—	5	2	—	52,873	49,615	3,258	—	6	3	1	1	603	10
New York City . . . . .	83,656	1	1	—	—	—	—	83,616	1,491	82,125	1	—	3	1	1	—	32
North Carolina . . . . .	1,111	—	1	1	2	1	—	20	2	18	—	1	333	38	1	1	712
North Dakota . . . . .	15	2	—	—	—	—	12	—	—	—	—	—	—	1	—	—	—
Ohio . . . . .	117	2	77	1	—	2	1	19	12	7	—	—	7	3	1	—	4
Oklahoma . . . . .	77	5	—	51	—	14	—	2	—	2	—	—	1	3	—	—	1
Oregon . . . . .	12,093	—	1	—	—	—	—	—	—	—	12,089	—	2	—	—	1	—
Pennsylvania . . . . .	1,360	4	5	1	1	—	1	1,303	995	308	1	1	5	5	—	1	32
Rhode Island . . . . .	5,918	—	—	—	4	—	—	43	3	40	—	5,868	—	—	—	—	3
South Carolina . . . . .	13,379	—	—	—	—	—	—	6	2	4	—	—	13,353	12	—	—	8
South Dakota . . . . .	121	92	—	3	—	1	22	—	—	—	1	—	—	—	1	—	1
Tennessee . . . . .	17,808	—	2	—	—	20	2	2	1	1	2	—	10	17,756	—	—	14
Texas . . . . .	67	11	4	2	2	10	2	5	2	3	—	—	5	10	4	—	10
Utah . . . . .	4,145	103	—	—	—	1	—	2	1	1	—	—	—	—	4,039	—	—
Vermont . . . . .	2,372	—	—	—	10	—	—	15	3	.12	—	1	—	—	—	2,346	—

Virginia . . . . .	32,527	1	3	--	2	--	--	126	7	119	--	1	9	363	--	--	32,022
Washington . . . . .	1,079	2	--	--	--	--	4	--	--	--	1,067	--	--	--	4	--	2
West Virginia . . . . .	182	--	--	--	--	--	--	7	--	7	--	--	2	7	--	--	166
Wisconsin . . . . .	11	--	2	2	--	3	--	--	--	--	--	--	2	1	--	--	1
Wyoming . . . . .	668	211	--	2	--	--	229	--	--	--	1	--	--	--	225	--	--
Outside United States																	
Puerto Rico . . . . .	1	--	--	--	--	--	--	1	--	1	--	--	--	--	--	--	--
Virgin Islands . . . . .	2	--	--	--	--	--	--	1	--	1	--	--	1	--	--	--	--
Canada . . . . .	692	2	--	--	163	--	411	109	77	32	5	--	--	--	1	1	--
Cuba . . . . .	1	--	--	--	--	--	--	1	1	--	--	--	--	--	--	--	--
Mexico . . . . .	6	1	--	--	--	--	1	3	--	3	--	--	--	1	--	--	--
Remainder of world . . . . .	125	--	--	--	6	1	1	101	3	98	4	1	2	--	--	--	9

## Technical notes

### Nature and sources of data

Data in this report are based on information for the same 14 States in 1988 as in 1987: Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

The reporting States provided data on magnetic tape for individual events coded from copies of the original reports of induced termination of pregnancy. These data were provided to the National Center for Health Statistics (NCHS) through the Vital Statistics Cooperative Program. NCHS collects information on individual abortions occurring in selected States with mandatory abortion reporting requirements. The State abortion reporting forms include information on the demographic characteristics and pregnancy history of the woman and the nature of the procedure. The NCHS data system, based on reports of individual abortions, enables detailed cross-classification.

Two other organizations currently publish information on induced abortions—the Center for Chronic Disease Prevention and Health Promotion (CCDPHP), which, like NCHS, is a component of the Centers for Disease Control (CDC), and the Alan Guttmacher Institute (AGI), a private organization. The CCDPHP relies primarily on aggregate abortion data reported by State health agencies, hospitals, and medical institutions; AGI obtains its information from a nationwide survey of abortion providers.

### Item completeness

Item completeness, which is measured by the percent of records with codes other than “not stated,” is shown in table I for the varying number of States included in the analysis of each item. States were excluded from analysis if either information was not collected on the item or no information for the item was reported for 25 percent or more of the records. Table I shows that resident status was 100 percent complete for both 1987 and 1988. Residence information, if

Table I. Percent completeness for items on reporting form and number of reporting States: 1987 and 1988

Item	1988		1987	
	Percent completeness	Number of reporting States	Percent completeness	Number of reporting States
Age of woman . . . . .	98.7	14	99.4	14
Education <sup>1</sup> . . . . .	95.8	11	94.2	12
Marital status of woman <sup>2</sup> . . . . .	96.7	13	96.1	13
Period of gestation . . . . .	99.6	14	99.8	13
Previous induced terminations . . . . .	97.1	14	96.2	14
Previous live births . . . . .	97.4	14	96.3	14
Race of woman . . . . .	96.4	14	96.5	14
Resident status <sup>3</sup> . . . . .	100.0	14	100.0	14
Type of procedure . . . . .	98.6	14	98.3	13

<sup>1</sup>New York City also reported education.

<sup>2</sup>New York City also reported marital status.

<sup>3</sup>Resident status unknown is allocated at the coding level; see Technical notes.

NOTE: The reporting area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

unknown or incomplete, is allocated at the coding level according to the following rules: First, records with unknown residence are allocated to place of occurrence; second, records with only State of residence reported, with no city or county specified, and where the State named is different from the State of occurrence, are allocated to the largest city of the State of residence.

### Classification of data

Procedures used for coding and classifying the items on the Report of Induced Termination of Pregnancy are described in the NCHS vital statistics instruction manual, part 10, “Classification and coding instructions for induced termination of pregnancy records, 1988” (12). Codes for geographic areas are described in part 8, “Vital records geographic classification, 1982” (13). Additional information on classifying selected items can be found in the technical appendix, *Vital Statistics of the United States*, vol 1 (14). Definitions of types of procedures used may be found in the publication, *Legalized Abortion and the Public Health* (15). Data on period of gestation are computed from information on “date of termination” and “date of last normal menses.” If “date of last normal menses” is not stated or computed gestation in weeks is not possible, “physician’s estimate of gestation in weeks” is used.

### Ratios, percents, and medians

Measures of incidence in this report are based on ratios of induced terminations of pregnancy to live births. These ratios refer to the number of induced terminations and live births occurring in the reporting States to residents of the reporting States. In the computation of ratios, “not stated” cases have been distributed according to the reported or known proportion for a particular characteristic. Ratios prior to 1988 are computed before distributed numbers are rounded. Ratios of induced terminations of pregnancy provide an approximate indication of the frequency of induced abortions to the frequency of pregnancies.

Two forms of induced abortion ratios (ratios per 1,000 live births—type I and ratios per 1,000 live births and induced abortions—type II) are shown in table II. Induced abortion ratios in the text of this report are of type I. These ratios are larger than those of type II, because the latter includes a larger number of events in the denominator than the former. Both ratios have the same number of events—induced terminations—in the numerator of the ratio. For type I ratios, age differentials are greater, that is, the range between the largest and the smallest ratios by age of women is greater than for type II ratios. Induced abortion differentials by race are also more pronounced using type I than type II ratios.

**Table II. Type I and Type II induced termination of pregnancy ratios by race and age of woman: 14-State area, 1988**

[Type I ratio is per 1,000 live births. Type II ratio is per 1,000 live births and induced terminations. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Age of woman	Type I			Type II		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
All ages . . . . .	325.4	265.8	598.1	245.5	210.0	374.2
Under 14 years. . . . .	1,576.1	1,786.3	1,477.7	611.8	641.1	596.4
14 years . . . . .	1,038.5	1,305.0	876.7	509.5	566.2	467.2
15-19 years. . . . .	663.9	666.0	666.9	399.0	399.8	400.1
15 years . . . . .	847.9	968.2	719.6	458.8	491.9	418.5
16 years . . . . .	788.0	847.1	701.1	440.7	458.6	412.1
17 years . . . . .	686.9	700.6	666.1	407.2	412.0	399.8
18 years . . . . .	706.1	716.8	690.6	413.9	417.5	408.5
19 years . . . . .	553.8	532.1	618.6	356.4	347.3	382.2
20-24 years. . . . .	393.7	331.7	622.3	282.5	249.1	383.6
25-29 years. . . . .	225.2	171.3	536.6	183.8	146.2	349.2
30-34 years. . . . .	195.8	146.5	515.4	163.7	127.8	340.1
35-39 years. . . . .	285.8	228.3	622.8	222.3	185.8	383.8
40 years and over . . . . .	499.9	426.9	851.1	333.3	299.2	459.8

<sup>1</sup>Includes races other than white and black.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

In the computation of percent distributions and medians, "not stated" cases are excluded. Proportional allocation of "not stated" cases in computing these measures would yield exactly the same results. In addition, medians were calculated using single years of age, single years of education, and single weeks of gestation.

In the computation of percent change, the following general formula was used:

$$\frac{R_1 - R_2}{R_2} \cdot 100$$

where  $R_1$  equals the ratio of interest in 1988 and  $R_2$  equals the ratio of

interest in 1987. The total percent change is a weighted average of the change for the groups of interest. Although it is unusual, the total percent change can be greater or smaller than either of the percent changes in its component parts.

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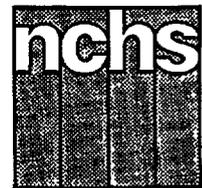
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# Monthly Vital Statistics Report



Final Data From the National Center for Health Statistics

## Induced Terminations of Pregnancy: Reporting States, 1987

by Kenneth D. Kochanek, M.A., Division of Vital Statistics

A graphic containing a table of contents for the report. The text is arranged in a grid-like format with varying background shading for each item.

Contents
Highlights
Introduction
Number of abortions and ratios
Age and race
Marital status
Years of school completed
Previous pregnancies
Period of gestation
Type of procedure
Residence patterns
References
List of detailed tables
Technical notes

### Highlights

In 1987 there were 300,310 abortions reported as occurring to residents within the 14 States reporting this information to the National Center for Health Statistics (NCHS), a decrease of 2,538 (1 percent) from the number for the previous year. The abortion ratio of 337.8 abortions per 1,000 live births in 1987 decreased from the ratio of 344.9 for the previous year, and continued the decline observed from 1985. From 1986 to 1987, ratios decreased for white

women, but increased slightly for black women. Decreases for white women were greater among unmarried than married women.

During 1982-87, for a 13-State reporting area, abortion ratios declined by 9 percent. For white women the declines were 14.0 percent, and for black women, 2.1 percent. Reductions were particularly marked among older women, with ratios declining by over one-fourth for women 40 years and over during this period.

The abortion ratio in 1987 for black women was 2¼ times that for white women, about the same relationship as in 1986. The median age and the age at which the greatest number of abortions occurred were both lower for white women (23.5 years and 18 years) than for black women (23.9 years and 21 years). The highest abortion ratios were for the youngest and the oldest women, a pattern observed for both black and white women. For almost every age group, ratios for black women were higher than for white women.

Induced abortion ratios are associated with marital status; both white and black married women had much lower ratios than unmarried women of the respective race groups in 1987. Abortion

ratios also are associated with educational attainment. For white women, ratios generally decreased with increasing number of years of school completed; but for black women, the decreases did not occur until 13-15 years of school completed.

In terms of previous pregnancy history, about 5 out of 10 women having induced terminations in 1987 had at least one previous live birth, and about 4 out of 10 had a prior induced termination. The median duration of gestation was 9.1 weeks for women having induced terminations in 1987. It was longer for black women, on the average, than for white women; longer for less educated women; and longer for out-of-State residents than for in-State residents.

In 1987 suction curettage was the type of procedure used in 96 percent of all induced terminations. Abortion ratios among women residing in metropolitan areas were almost 2½ times as high as those among nonmetropolitan residents.

### Introduction

This report on induced terminations of pregnancy is based on 1987



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Centers for Disease Control  
National Center for Health Statistics  
Manning Feinleib, M.D., Dr. P.H., Director

data reported to NCHS by 14 States. Earlier reports showed data for 5 States in 1977, 8 States in 1978, 13 States in 1979, 12 States in 1980 and 1981, and 13 States for each year 1982–86 (1–7). The States in this report include Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Although New York City is a separate registration area from the remainder of New York State, the data for both areas are combined except where otherwise noted.

Data are based on individual reports of induced abortions submitted to State vital registration offices. Reports of induced terminations are submitted to these offices in accordance with the laws and statutes of the respective States. The reporting States provided data on magnetic tape for individual events coded from copies of the original reports of induced termination of pregnancy.

Induced abortions are distinguished in NCHS statistics from spontaneous abortions or fetal deaths. Induced abortion means “the purposeful interruption of pregnancy with the intention other than to produce a live-born infant or to remove a dead fetus which does not result in a live birth” (8). All other abortions are “spontaneous.” In this report, the term “abortion” refers to “induced abortion” or “induced termination of pregnancy”; all three terms are used interchangeably.

Abortion data are shown on both an occurrence and a residence basis. Most detailed tables at the end of the report and selected text tables show data on all abortions occurring in the 14-State reporting area to U.S. residents. The occurrence tables represent characteristics and factors associated with the utilization of health services within the geographic area in which the abortions occurred. In contrast, ratio tables exclude abortions to nonresidents of the reporting States. Such tables show the frequency of abortions in relation to demographic characteristics associated with births to residents of the area. The distinction between occurrence and residence data is made in the text and in the headnotes of the tables.

Data are analyzed using percent distributions, medians, and ratios (see Technical notes). Abortion ratios are based on the number of abortions and live births occurring in the reporting States to residents of those States. Ratios are expressed as the number of abortions per 1,000 live births. Such ratios provide an approximate indication of the frequency of abortions in relation to the frequency of pregnancies.

An estimate of pregnancies could include the sum of live births, induced terminations, and spontaneous fetal deaths; however, it is common practice to use only live births in calculating these ratios (9,10), because data on fetal deaths under 20 weeks' gestation are not reported for most States. When fetal deaths of 20 weeks' or more gestation are included in the denominator along with live births and abortions, the abortion ratios for the reporting area are slightly lower than when only live births and abortions are used. A comparison of abortion ratios per 1,000 live births and per 1,000 live births plus induced terminations is shown in the Technical notes.

The magnitude of the ratios is affected by the distribution of both live births and abortions according to such characteristics of the female population as age, race, marital status, and number of years of school completed in a specified State or group of States. Therefore, ratios for the same demographic group, such as white females, may vary for different multi-State areas. Accordingly, caution should be used in generalizing from ratios reported for the multi-State reporting area to the entire U.S. population.

### Number of abortions and abortion ratios

In 1987 a total of 300,310 abortions were reported as occurring to U.S. residents within the 14-State reporting area, a decrease of 0.8 percent from the 302,848 abortions reported for the same area in 1986. Of the 1987 abortions, 18,290, or 6.1 percent, involved nonresidents of the area. The induced abortion ratio for the 14-State area in 1987 was 337.8 abortions per 1,000 live births, a decrease of 2.1 percent from the previous year (table A).

The trend for 1982 to 1987 of abortion ratios is available for a 13-State reporting area. To maintain comparability in the trends since 1982, the abortion ratios are presented for the 13-State area from 1982 to 1987 and for the 14-State area for 1986 and 1987 (table 1). States in the 13-State reporting area include Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. From 1982 through 1987, abortion ratios declined by 9 percent (table A and figure 1).

### Age and race

One-fourth of the induced abortions in 1987 in the 14-State area were to women under 20 years of age (table 2). One-third occurred to women at ages 20–24 years. The remaining 42 percent were to women 25 years of age and over.

The pattern of abortions by age for white and black women has remained similar since 1978. In 1987, as in previous years, a slightly larger proportion white women who had abortions (59 percent) were under 25 years of age compared with black women (57 percent). Similarly, the median age at pregnancy termination was lower for white women (23.5 years) than for black women (23.9 years). In 1987 the age at which the greatest number of abortions occurred was lower for white women (18 years) than for black women (21 years).

Abortion ratios vary by age of women at termination (table A). Ratios are higher at the extremes of the age distribution of the childbearing period; that is, among women 14 years of age and under and 40 years of age and over of both race groups. However, women in these age groups combined accounted for a total of only 1.5 percent of all induced terminations and all live births in 1987. Although abortion ratios by age for both white and black women have a U-shaped pattern, the variation in abortion ratios is greater for white women (figure 2).

Trends in age-specific abortion and abortion ratios are presented in tables 3 and 4 for the 13- and 14-State reporting areas. Since 1982, abortion

**Table A. Ratio of reported induced terminations of pregnancy, 1987, and percent change, 1986-87 for 14-State area, and 1982-87 for 13-State area, by race and age of woman**

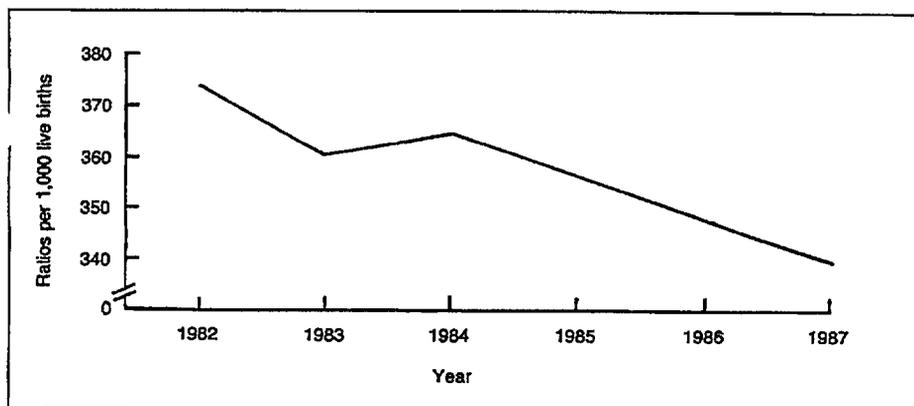
[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Age of woman	1987			1986-87			1982-87		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
	Ratio			Percent change <sup>2</sup>					
All ages . . . . .	337.8	274.0	635.2	-2.1	-3.6	0.2	-9.0	-14.0	-2.1
Under 14 years . . . . .	1,705.1	1,829.4	1,672.6	-2.5	-9.2	3.9	-8.0	-20.1	0.6
14 years . . . . .	1,146.1	1,245.7	1,080.2	-7.3	-7.5	-6.4	-8.7	-17.6	1.6
15-19 years . . . . .	683.7	680.4	701.3	-1.4	-3.0	2.1	-5.1	-9.2	4.9
15 years . . . . .	919.3	1,044.7	790.4	-11.6	-9.1	-15.3	-9.8	-9.2	-9.0
16 years . . . . .	836.1	890.1	761.2	-7.9	-9.9	-3.9	-3.2	-5.8	2.9
17 years . . . . .	734.6	738.3	742.4	0.5	-3.6	11.3	-3.9	-9.9	12.2
18 years . . . . .	712.8	716.5	710.7	1.7	0.3	4.8	-5.7	-10.9	8.3
19 years . . . . .	550.8	529.5	616.2	-0.8	-2.3	2.9	-6.5	-10.2	2.3
20-24 years . . . . .	400.6	335.1	652.6	-0.3	-1.9	0.8	0.5	-4.4	2.5
25-29 years . . . . .	232.3	175.4	567.9	-1.3	-2.0	-1.7	-4.5	-8.3	-4.3
30-34 years . . . . .	209.1	156.1	557.1	-1.4	-2.8	1.2	-14.1	-17.3	-11.0
35-39 years . . . . .	307.7	240.6	691.0	-6.8	-9.5	-2.0	-24.8	-28.4	-17.1
40 years and over . . . . .	568.2	483.6	993.9	-6.1	-8.9	2.1	-26.7	-29.2	-17.7

<sup>1</sup>Includes races other than white and black.

<sup>2</sup>See Technical notes.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures. See Technical notes.



**Figure 1. Abortion ratios: 13-State area, 1982-87**

ratios for women 30 years of age and over have decreased for both races. For younger women, ratios fluctuated through 1984 and then decreased. Decreases have been progressively greater with increasing age for both race groups. The largest reductions were for the oldest age group, women 40 years of age and over. During 1982-87, abortion ratios for white women in this age group declined by 29 percent; for black women, by 18 percent.

For white women, there were 274.0 abortions per 1,000 live births in 1987 compared with 635.2 for black women. In both 1986 and 1987 the ratio of abortions to live births was higher for white women 14 years and under than for black women; but for women 15 years of age and over, the ratio was

higher for black than for white women in every 5-year age group in 1987.

From 1986 to 1987, abortion ratios for residents of the 14-State area decreased by 3.6 percent for white women but increased slightly for black women (table A). For white women, these decreases were reflected in reductions from 1986 to 1987 for all 5-year age groups. For white women, decreases were largest at the youngest ages and the oldest ages. For black women, the trends by age were not consistent between these two years. Some age groups showed increases; others, decreases.

From 1982 through 1987, for a 13-State reporting area, abortion ratios by race declined. For white women the

declines were 14.0 percent, and for black women, 2.1 percent.

The gap between black and white abortion ratios increased from a black/white ratio of 2.0 in 1982 for all ages to 2.3 in 1987, an increase of 15 percent (table 4). Racial differences in abortion ratios increased for all age groups from 1982 through 1987. These increases ranged from 4 percent for women aged 25-29 years to 26 percent for women under 14 years of age.

### Marital status

Thirteen States (Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia) and New York City collected information on the marital status of women having induced terminations. Of the abortions occurring in this area in 1987, 20 percent were reported for married women and 80 percent for unmarried women (table 5).

Married women who had abortions tended to be older than unmarried women who had abortions. More than two-thirds (70 percent) of married women but only slightly more than one-third (36 percent) of unmarried women having abortions were 25 years of age and over. The median age of married women having abortions in 1987 was 28.1 years, 5.3 years older than the

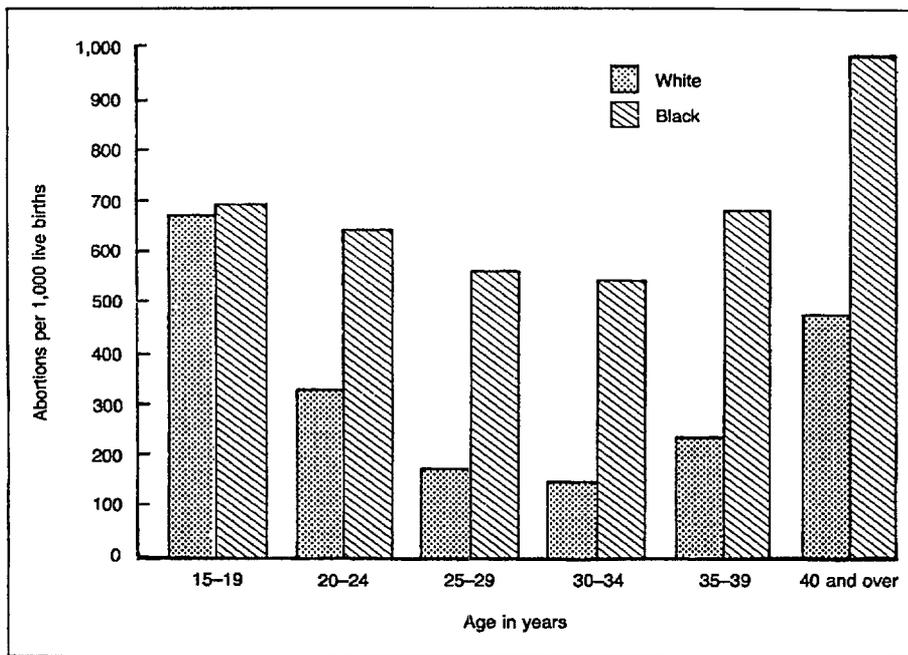


Figure 2. Abortion ratios by age and race of woman: 14-State area, 1987

median age of 22.8 years for unmarried women.

Black women who had abortions tended to be older than white women who had abortions, regardless of marital status. Of married black women, 73 percent were 25 years of age and over compared with 68 percent of married white women. Similarly, among unmarried women having abortions, 38 percent of black women were 25 years of age and over compared with 35 percent of white women. In 1987 the median age of married black and white women obtaining an abortion was 28.5 and 27.8 years, respectively, compared with 23.1 years for unmarried black women and 22.5 years for unmarried white women.

Induced abortion ratios by marital status and race for events to residents occurring in the 13-State area are shown in table B. Data for New York were excluded because information was not obtained on mothers' marital status for abortions occurring in upstate New York. In 1987 married women had fewer than 1 induced abortion for every 10 live births, and unmarried women had 9 induced abortions for every 10 live births (table B). Among married women the abortion ratio for black women was nearly three times that for white women. However, among

unmarried women the relationship by race was reversed. For white unmarried women, the abortion ratio was 2¼ times that for black unmarried women in 1987.

Decreases in abortion ratios between 1986 and 1987 among married women were about the same for white and black women (1 percent). For unmarried women, the ratios decreased substantially for white women (8 percent), but by only 1 percent for black women.

### Years of school completed

For a 12-State area (Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, South Carolina,

Tennessee, Utah, Vermont, and Virginia), 1987 data are available on induced abortions by years of school completed by the women (table 6). Reporting area residents having abortions had about the same median years of school completed (12.6 years) as their counterparts carrying their pregnancies to term, 12.7 years.

Abortion ratios are associated with years of school completed, but the pattern differs somewhat between white and black women (table C). For white women, the highest ratio was for those with 9-11 years of schooling completed (335.1 abortions per 1,000 live births), and the peak for black women was for those with 12 years of schooling completed (775.2). For white women, the lowest ratio was for those with the most years of school completed (16 years or more), compared with black women for whom the lowest ratio was for those with the least years of school completed (0-8 years).

The pattern of abortion ratios by educational attainment for all ages combined may be affected by the interrelation of age, marital status, and a number of years of school completed. Very young women are more likely to be unmarried and may not have completed their schooling. Further, the ratios for women of high educational attainment may reflect the lower ratios that characterize older women. To take into account these interrelationships and to obtain a better indication of the association between educational attainment and abortion patterns, an analysis was made for women aged 25 years old and over, most of whom will have

Table B. Ratio of reported induced terminations of pregnancy, 1987, and percent change, 1986-87, by marital status and race of woman: 13-State area

(Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area)

Race of woman	Ratio			Percent change <sup>1</sup>		
	All women	Married	Unmarried	All women	Married	Unmarried
All races <sup>2</sup> . . . . .	243.1	63.6	868.9	-1.3	-0.5	-6.1
White . . . . .	219.1	54.5	1,144.2	-2.0	-0.9	-8.4
Black . . . . .	374.8	151.0	515.5	-0.8	-1.1	-1.4

<sup>1</sup>See Technical notes.  
<sup>2</sup>Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures. See Technical notes.

**Table C. Ratio of reported induced terminations of pregnancy by years of school completed, race, and age of woman: 12-State area, 1987**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Race and age of woman	Total	Years of school completed				
		0-8 years	9-11 years	12 years	13-15 years	16 years or more
		Ratio				
All races <sup>1</sup> . . . . .	344.6	238.0	371.6	418.8	320.7	193.5
10-17 years . . . . .	824.1	459.6	770.5	2,059.7	2,338.5	-
18-24 years . . . . .	452.0	150.3	261.5	488.6	598.6	830.0
25 years and over . . . . .	244.5	194.3	294.1	335.4	203.9	146.3
White . . . . .	277.6	192.2	335.1	329.7	258.5	161.3
10-17 years . . . . .	851.2	361.1	824.6	2,084.5	2,370.0	-
18-24 years . . . . .	391.0	135.5	223.2	408.4	537.2	764.2
25 years and over . . . . .	183.9	169.8	248.0	247.5	151.3	119.2
Black . . . . .	637.4	398.3	464.9	775.2	638.2	560.4
10-17 years . . . . .	793.9	628.4	699.1	2,053.8	2,387.5	-
18-24 years . . . . .	657.3	231.2	370.5	753.4	821.6	1,332.2
25 years and over . . . . .	588.2	260.0	406.1	755.5	518.7	461.9

<sup>1</sup> Includes races other than white and black.

NOTE: The 12-State area includes Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures. See Technical notes.

completed their formal education by that age (figure 3). This analysis shows that the peak abortion ratios for both race groups were for women with 12 years of schooling completed. For white women over 25 years, the ratio was 247.5 abortions per 1,000 live births and for black women, 755.5. With additional education, abortion ratios declined for both black and white women, but the decline was proportionately greater for white than for black women.

every age black women having abortions were more likely than white women to have had a previous live birth.

For a 13-State area (Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia) and New York City, data are available on the number of previous live births to women having abortions in 1987 according to the marital status of the woman. Approximately

four-fifths (81 percent) of married women and two-fifths (42 percent) of unmarried women who obtained abortions had had at least one previous live birth (table 8).

**Previous induced terminations**

For the 14-State area, over one-half (54 percent) of black women and two-fifths of white women having abortions in 1987 had repeat abortions (table E). In each age group, a larger proportion of black than white women had experienced a prior abortion (table 9). Among black women, at least one-half of each 5-year age group aged 20-24 years and over had experienced a prior induced abortion. Among white women, the age group 30-34 years had the largest percent of repeat abortions, 54 percent. For those under 15 years of age, the youngest group, only 8 percent had had a previous induced abortion.

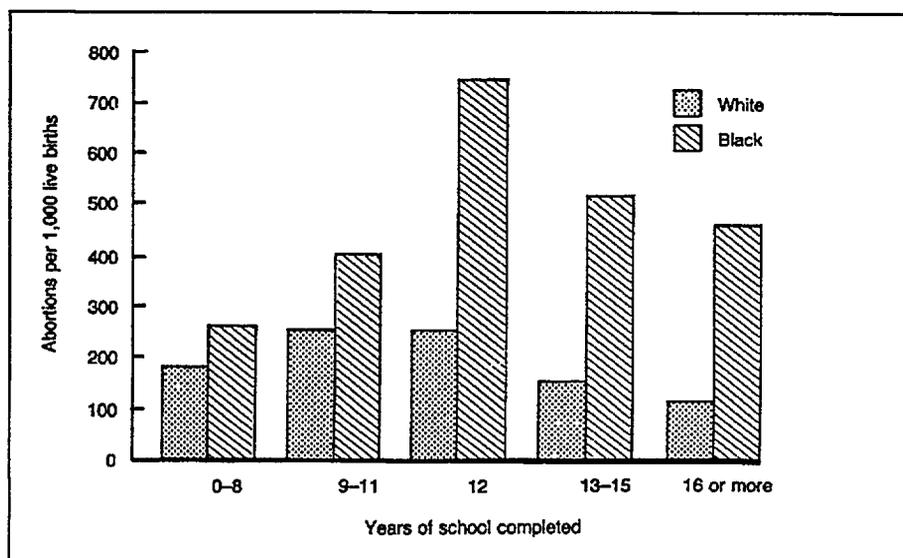
**Period of gestation**

Almost 9 out of 10 induced terminations occurring in the 13-State area in 1987 occurred during the first trimester of pregnancy, as shown in table F and tables 10 and 11. Almost one-half (49 percent) were for pregnancies of 8 weeks' or less duration and 41 percent were for pregnancies of 9-12 weeks' duration. Only 11 percent

**Previous pregnancies**

**Previous live births**

In 1987 almost one-half (49 percent) of the women who obtained abortions in the 14-State area had at least one previous live birth (table D). The percent was greater among black than among white women, 63 percent compared with 42 percent, and was directly related to the age of the woman having an abortion: The older the woman, the more likely she had had a previous live birth (table 7). Among women aged 40 years and over, 87 percent had had at least one previous live birth. In contrast, among women aged 15-17 years, only 9 percent had had at least one previous live birth. The same pattern existed for women of both races; at



**Figure 3. Abortion ratios by years of school completed and race for women aged 25 years and over: 12-State area, 1987**

**Table D. Percent distribution of reported induced terminations of pregnancy by previous live births to woman, according to race: 14-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Previous live births	All races <sup>1</sup>	White	Black
Total . . . . .	100.0	100.0	100.0
No previous live birth . . . . .	51.1	58.5	36.8
1 previous live birth . . . . .	23.5	20.0	30.7
2 previous live births . . . . .	16.4	14.4	19.9
3 previous live births . . . . .	6.0	4.9	7.9
4 previous live births . . . . .	2.0	1.5	2.9
5 previous live births . . . . .	0.7	0.4	1.0
6 previous live births . . . . .	0.2	0.2	0.4
7 previous live births or more . . . . .	0.2	0.1	0.3

<sup>1</sup>Includes races other than white and black.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table E. Percent of reported induced terminations of pregnancy to women with a previous induced termination by race and age of woman: 14-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman	All races <sup>1</sup>	White	Black
All ages . . . . .	44.4	39.6	53.6
Under 15 years . . . . .	7.6	5.1	9.2
15-17 years . . . . .	16.4	12.7	23.5
18-19 years . . . . .	27.4	23.1	38.1
20-24 years . . . . .	45.1	40.6	54.3
25-29 years . . . . .	56.7	52.5	64.8
30-34 years . . . . .	58.6	53.8	67.8
35-39 years . . . . .	54.5	48.7	66.5
40 years and over . . . . .	48.7	42.7	62.8

<sup>1</sup>Includes races other than white and black.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table F. Percent distribution of reported induced terminations of pregnancy by period of gestation and median gestational period, according to age of woman: 13-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	Under								
	All ages	15 years	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40 years and over
	Percent distribution								
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.0	7.1	7.8	9.3	11.8	14.9	17.4	19.5	18.7
7-8 weeks . . . . .	35.5	24.9	26.9	31.3	35.0	38.2	40.3	41.1	41.2
9-12 weeks . . . . .	40.9	43.9	47.6	46.0	42.2	38.5	35.3	32.6	33.1
13 weeks or more . . . . .	10.7	24.1	17.8	13.3	11.0	8.3	7.0	6.7	6.9
	Median								
Period of gestation . . . . .	9.1	10.4	10.0	9.6	9.2	8.8	8.6	8.5	8.5

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

of all abortions were obtained by women whose pregnancies lasted more than 12 weeks.

The median gestational period for black women having abortions, 9.4 weeks, was slightly longer than the corresponding period for white women, 9.0 weeks. The length of the gestational period also tended to be longer for younger than for older women (figure 4). For women under 20 years of age, the median gestational period was 9.8 weeks, almost 1 week longer than the 8.9-week period for women aged 20 years and over. The same pattern by age prevailed for black and white women. However, black women at every age had longer gestational periods prior to induced termination than white women.

For an 11-State area (Indiana, Kansas, Missouri, Montana, New York, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia) in 1987, data are available to examine duration of pregnancy prior to abortion by educational attainment of woman, age, and race (table 12). Generally, delayed terminations were associated with less educational attainment. For women with less than a high school education, the median gestational period was 9.8 weeks compared with 8.9 weeks for women with 12 years or more of school completed. When this analysis is restricted to women 25 years of age and over who had the opportunity to complete their schooling, the relationship is attenuated. The median duration of pregnancy prior to termination for women 25 years of age and over with less than a high school education was 9.0 weeks, and the median for those with 12 years or more of school completed was 8.7 weeks. The relationship between educational attainment and gestational duration was similar for white and black women, although black women of every educational attainment level had induced abortions later in their pregnancies than white women.

### Type of procedure

Data on types of procedures use to induce pregnancy terminations are available for the 13-State area for 1987

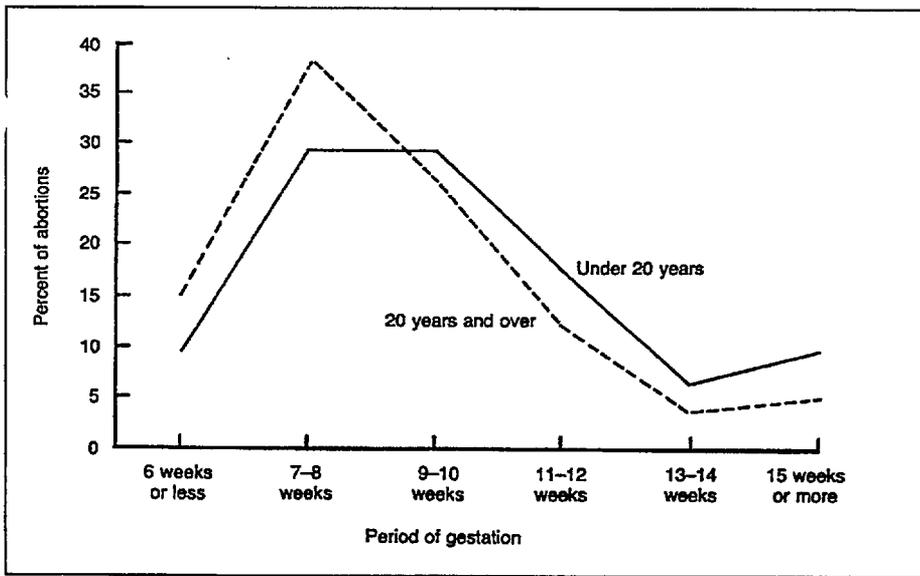


Figure 4. Percent distribution of abortions by period of gestation, according to woman's age: 13-State area, 1987

(tables G and 13). These figures indicate that more than 9 out of 10 induced abortions were performed by suction curettage (table 13). The second most frequently reported method, sharp curettage, accounted for only 2 percent of the induced abortions in 1987. Suction curettage was the predominant procedure for induced abortions for all periods of gestation, decreasing slightly as gestation period increased. Saline instillation, which accounted for 1 percent of the induced abortions, increases in prevalence as gestational period increases, but never matches the dominance of the suction curettage procedure.

**Residence patterns**

**Metropolitan and nonmetropolitan residence**

In 1987 metropolitan area residents obtained 87 percent of the induced terminations occurring in the 14-State area (table 14). Residents of nonmetropolitan areas having induced abortions were, on the average, younger than women in metropolitan areas having abortions. The median age at termination for nonmetropolitan area women was 22.8 years, and for metropolitan area women, 23.8 years.

The relative frequency of induced abortions per 1,000 live births was

almost 2½ times as high for residents of metropolitan areas compared with non-metropolitan areas, 391.5 and 163.9, respectively (table H). Black women living in metropolitan areas were more than three times as likely to obtain abortions as black women living in non-metropolitan areas, but the relative frequency of induced abortions among white women living in metropolitan areas was two times that of white women residing in nonmetropolitan areas. Among nonmetropolitan residents, abortion ratios for black women (221.7) were nearly 1½ times those for white women (158.6). In metropolitan areas, the abortion ratio for black women, 699.2, was more than two times that for white women (314.9). Thus, the difference in abortion ratios between the two racial groups was somewhat greater in metropolitan areas than in nonmetropolitan areas, reflecting the very high abortion ratios of black women in metropolitan areas.

**Out-of-State residents**

For a 13-State area (Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia) in 1987, data are available to examine resident status of the woman by gestational age. In the 13-State area, only 7.4 percent of induced abortions were obtained by U.S. residents outside of their State of residence (table 15). Nearly two-thirds (64 percent) were in their county of residence, and the remainder (28 percent) were within their State but outside their county of residence.

Residence status is associated with the duration of gestation prior to termination. Women obtaining abortions outside their State of residence have longer pregnancies prior to termination than women having abortions in their State of residence. The median gestational period for out-of-State residents was 9.5 weeks compared with 9.1 weeks for women obtaining abortions in their State of residence. About 18 percent of out-of-State residents obtained their abortions after 12 weeks compared with 10 percent for State residents.

Of all the abortions (including those for nonresidents of the United

Table G. Percent distribution of reported induced terminations of pregnancy by procedure, according to period of gestation: 13-State area, 1987

[Data include only induced terminations of pregnancy occurring in the reporting area]

Procedure	Period of gestation <sup>1</sup>			
	All periods	Less than 13 weeks	13-15 weeks	16 weeks or more
		Percent distribution		
All procedures . . . . .	100.0	100.0	100.0	100.0
Suction curettage . . . . .	95.8	97.9	89.2	65.6
Sharp curettage . . . . .	1.9	1.2	6.6	8.8
Saline instillation . . . . .	1.0	0.1	2.0	15.8
Prostaglandin instillation . . . . .	0.4	0.1	1.1	6.5
Hysterotomy . . . . .	0.0	0.0	0.0	0.1
Hysterectomy . . . . .	0.0	0.0	0.0	0.0
Other . . . . .	0.9	0.8	1.0	3.2

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table H. Ratio of reported induced terminations of pregnancy, 1987, and percent change, 1986-87, by race and metropolitan-nonmetropolitan residence: 14-State area**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Geographic area	All races <sup>1</sup>			All races <sup>1</sup>		
	White	Black	Ratio	White	Black	Percent change <sup>2</sup>
All areas . . . . .	337.8	274.0	635.2	-2.1	-3.6	0.2
Metropolitan areas . . . . .	391.5	314.9	699.2	-2.6	-4.4	0.1
Nonmetropolitan areas . . . . .	163.9	158.6	221.7	-1.4	-1.4	-1.3

<sup>1</sup>Includes races other than white and black.<sup>2</sup>See Technical notes.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

States) reported in 1987 to NCHS, the proportion in each of the 14 reporting States accounted for by residents of that State varied from a high of 96.6 percent in Indiana to a low of 60.3 percent in Kansas (table 16). Some 37 percent of the abortions reported by Kansas were for Missouri residents whereas only 2.5 percent of the abortions reported by Missouri were for Kansas residents in 1987. In Montana, 18 percent of abortions were obtained by nonresidents of the United States, mainly Canadians.

## References

1. Burnham D. Induced terminations of pregnancy: reporting States, 1977 and 1978. Monthly vital statistics report; vol 30 no 6, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1981.
2. Burnham D. Induced terminations of pregnancy: reporting States, 1979. Monthly vital statistics report; vol 31 no 7, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1982.
3. Burnham D. Induced terminations of pregnancy: reporting States, 1980. Monthly vital statistics report; vol 32 no 8, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1983.
4. Prager K. Induced terminations of pregnancy: reporting States, 1981. Monthly vital statistics report; vol 34 no 4, suppl 2. Hyattsville, Maryland: National Center for Health Statistics. 1985.
5. Powell-Griner E. Induced terminations of pregnancy: reporting States, 1982 and 1983. Monthly vital statistics report; vol 35 no 3, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1986.
6. Powell-Griner E. Induced terminations of pregnancy: reporting States, 1984. Monthly vital statistics report; vol 36 no 5, suppl 2. Hyattsville, Maryland: National Center for Health Statistics. 1987.
7. Kochanek KD. Induced terminations of pregnancy: reporting States, 1985 and 1986. Monthly vital statistics report; vol 37 no 12, suppl. Hyattsville, Maryland: National Center for Health Statistics. 1989.
8. National Center for Health Statistics. Model State vital statistics act and model State vital statistics regulations, 1977 revision. Hyattsville, Maryland: Public Health Service. 1978.
9. Tietze C. Induced abortion, 1979: A Population Council fact book. New York: The Population Council, Inc. 1979.
10. Centers for Disease Control. Abortion surveillance—Annual summary 1979-1980. Atlanta: Public Health Service. 1983.
11. National Center for Health Statistics. Classification and coding instructions for induced termination of pregnancy records, 1987. Vital statistics instruction manual, part 10. Hyattsville, Maryland: Public Health Service. 1986.
12. National Center for Health Statistics. Vital records geographic classification—1982. Vital statistics instruction manual, part 8. Hyattsville, Maryland: Public Health Service. 1985.
13. National Center for Health Statistics. Vital statistics of the United States, vol I, natality. Washington: Public Health Service. 1983.
14. Institute of Medicine. Legalized abortion and the public health. Washington: National Academy of Sciences. 1975.

## List of detailed tables

Number and ratio of reported induced terminations of pregnancy by race of woman: 13- and 14-State areas, 1982-87		and age of woman and percent distribution by previous live births, according to race and age of woman: 14-State area, 1987		by period of gestation, according to race, age, and years of school completed by woman: 11-State area, 1987	
2. Number and percent distribution of reported induced terminations of pregnancy by race and age of woman: 14-State area, 1987	10	8. Number of reported induced terminations of pregnancy by marital status and age of woman and percent distribution by previous live births, according to marital status and age of woman: 13-State area and New York City, 1987	10	13. Number of reported induced terminations of pregnancy by procedure and percent distribution by procedure, according to period of gestation: 13-State area, 1987	26
3. Number of reported induced terminations of pregnancy by age and race of woman: 13- and 14-State areas, 1982-87		9. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous induced terminations, according to race and age of woman: 14-State area, 1987	11	14. Number and percent distribution of reported induced terminations of pregnancy by metropolitan-nonmetropolitan residence, race, and age of woman: 14-State area, 1987	29
4. Ratio of reported induced terminations of pregnancy by age and race of woman: 13- and 14-State areas, 1982-87		10. Number of reported induced terminations of pregnancy by race of woman and percent distribution by period of gestation, according to race of woman: 13-State area, 1987	12	15. Number of reported induced terminations of pregnancy by residence status of woman and percent distribution by period of gestation, according to residence status of woman: 13-State area, 1987	19
5. Number of reported induced terminations of pregnancy by race and marital status of woman and percent distribution by age, according to race and marital status of woman: 13-State area and New York City, 1987	13	11. Number of reported induced terminations of pregnancy by age of woman and percent distribution by period of gestation, according to age of woman: 13-State area, 1987	13	16. Number of reported induced terminations of pregnancy in the reporting States and New York City by place of residence, according to place of occurrence: United States, each State, New York City, and specified places outside the United States, 1987	22
6. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by years of school completed, according to race and age of woman: 12-State area, 1987	14	12. Number of reported induced terminations of pregnancy by years of school completed, race, and age of woman and percent distribution	14		24
Number of reported induced terminations of pregnancy by race					25

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### Symbols

- - - Data not available
  - ... Category not applicable
  - Quantity zero
  - 0.0 Quantity more than zero but less than 0.05
  - Z Quantity more than zero but less than 500 where numbers are rounded to thousands
  - \* Figure does not meet standards of reliability or precision (when the base of the measure includes fewer than 20 events)
-

**Table 1. Number and ratio of reported induced terminations of pregnancy by race of woman: 13- and 14-State areas, 1982-87**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Area and year	Number			Ratio		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
<b>13-State area</b>						
1987	278,273	177,734	93,877	339.8	274.9	635.6
1986	281,066	183,777	91,000	347.2	285.7	634.4
1985	288,036	192,780	89,548	355.7	297.6	639.3
1984	288,829	196,038	87,011	364.3	307.4	646.3
1983	286,091	194,268	86,426	360.8	304.2	644.4
1982	299,585	206,737	87,756	373.5	319.8	649.2
<b>14-State area</b>						
1987	282,020	181,458	93,890	337.8	274.0	635.2
1986	284,655	187,332	91,023	344.9	284.3	634.2

<sup>1</sup>Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. The 14-State area includes: Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures. See Technical notes.

**Table 2. Number and percent distribution of reported induced terminations of pregnancy by race and age of woman: 14-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All ages	300,310	189,014	100,922	94,025	6,897	10,374
Under 14 years	685	238	429	424	5	18
14 years	1,851	844	963	943	20	44
15-19 years	70,477	46,853	21,234	20,361	873	2,390
15 years	4,876	2,837	1,884	1,842	42	155
16 years	10,190	6,548	3,286	3,198	88	356
17 years	14,826	9,855	4,496	4,338	158	475
18 years	20,278	13,850	5,751	5,461	290	677
19 years	20,307	13,763	5,817	5,522	295	727
20-24 years	99,842	63,055	33,416	31,530	1,886	3,371
25-29 years	65,210	39,707	23,340	21,586	1,754	2,163
30-34 years	37,236	22,613	13,267	11,996	1,271	1,356
35-39 years	18,422	11,477	6,257	5,436	821	688
40 years and over	4,894	3,239	1,469	1,238	231	186
Not stated	1,693	988	547	511	36	158
Percent distribution						
All ages	100.0	100.0	100.0	100.0	100.0	100.0
Under 14 years	0.2	0.1	0.4	0.5	0.1	0.2
14 years	0.6	0.4	1.0	1.0	0.3	0.4
15-19 years	23.6	24.9	21.2	21.8	12.7	23.4
15 years	1.6	1.5	1.9	2.0	0.6	1.5
16 years	3.4	3.5	3.3	3.4	1.3	3.5
17 years	5.0	5.2	4.5	4.6	2.3	4.6
18 years	6.8	7.4	5.7	5.8	4.2	6.6
19 years	6.8	7.3	5.8	5.9	4.3	7.1
20-24 years	33.4	33.5	33.3	33.7	27.5	33.0
25-29 years	21.8	21.1	23.3	23.1	25.6	21.2
30-34 years	12.5	12.0	13.2	12.8	18.5	13.3
35-39 years	6.2	6.1	6.2	5.8	12.0	6.7
40 years and over	1.6	1.7	1.5	1.3	3.4	1.8

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 3. Number of reported induced terminations of pregnancy by age and race of woman: 13- and 14-State areas, 1982-87**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Race, area, and year	All ages	Under 14 years		15-19 years						20-24 years	25-29 years	30-34 years	35-39 years	40 years and over	Not stated
		14 years	Total	15 years	16 years	17 years	18 years	19 years							
<b>All races<sup>1</sup></b>															
Number															
<b>13-State area:</b>															
1987	295,800	682	1,831	69,086	4,774	9,953	14,457	19,934	19,968	98,366	64,367	36,794	18,227	4,824	1,623
1986	298,719	738	2,081	70,133	5,458	10,372	13,873	19,752	20,678	100,971	64,637	35,831	18,120	4,505	1,703
1985	305,938	714	2,339	73,567	5,668	10,264	14,426	21,040	22,169	104,947	64,714	35,259	17,609	4,728	2,061
1984	306,792	758	2,295	74,437	5,268	9,922	14,739	21,619	22,889	105,360	64,278	34,714	16,797	4,673	3,480
1983	304,496	801	2,189	76,579	5,399	10,206	14,717	22,641	23,616	103,890	63,230	33,826	16,016	4,757	3,208
1982	320,271	716	2,085	82,524	5,612	11,119	16,734	24,344	24,715	109,357	65,283	35,272	16,688	4,930	3,416
<b>14-State area:</b>															
1987	300,310	685	1,851	70,477	4,876	10,190	14,826	20,278	20,307	99,842	65,210	37,236	18,422	4,894	1,693
1986	302,848	743	2,110	71,454	5,561	10,595	14,213	20,100	20,985	102,316	65,398	36,197	18,318	4,561	1,751
<b>White</b>															
<b>13-State area:</b>															
1987	184,656	235	824	45,495	2,739	6,315	9,497	13,512	13,432	61,620	38,898	22,192	11,292	3,172	928
1986	190,125	260	951	46,899	3,125	6,595	9,400	13,596	14,183	65,073	39,503	21,994	11,507	2,994	944
1985	201,245	288	1,160	50,890	3,349	6,845	9,998	15,104	15,594	70,367	40,788	22,173	11,600	3,198	781
1984	203,408	289	1,139	52,399	3,148	6,700	10,394	15,647	16,510	71,482	40,954	22,107	11,109	3,173	756
1983	202,428	272	1,055	53,852	3,147	6,824	10,292	16,487	17,102	70,815	40,447	21,517	10,521	3,141	808
1982	216,721	276	1,091	59,512	3,411	7,577	12,148	18,176	18,200	75,789	42,368	22,572	10,972	3,297	844
<b>14-State area:</b>															
1987	189,014	238	844	46,853	2,837	6,548	9,855	13,850	13,763	63,055	39,707	22,613	11,477	3,239	988
1986	194,048	265	978	48,165	3,224	6,812	9,728	13,932	14,469	66,361	40,222	22,336	11,694	3,045	982
<b>Black</b>															
<b>13-State area:</b>															
1987	93,999	424	943	20,352	1,842	3,198	4,333	5,459	5,520	31,521	21,583	11,994	5,435	1,238	509
1986	90,700	444	1,036	19,680	2,068	3,248	3,728	5,208	5,428	30,372	21,107	11,242	5,178	1,163	478
1985	90,002	407	1,123	19,918	2,125	3,069	3,911	5,144	5,669	30,266	20,659	11,052	4,915	1,216	446
1984	87,033	450	1,096	19,308	1,945	2,884	3,832	5,168	5,479	29,241	20,135	10,647	4,619	1,216	321
1983	86,626	511	1,080	20,108	2,109	3,051	3,930	5,342	5,676	28,770	19,679	10,374	4,496	1,308	300
1982	88,331	423	943	20,373	2,048	3,215	4,081	5,417	5,612	29,339	19,963	10,856	4,747	1,317	370
<b>14-State area:</b>															
1987	94,025	424	943	20,361	1,842	3,198	4,338	5,461	5,522	31,530	21,586	11,996	5,436	1,238	511
1986	90,730	444	1,036	19,694	2,070	3,249	3,733	5,211	5,431	30,382	21,111	11,243	5,179	1,163	478

<sup>1</sup>Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 4. Ratio of reported induced terminations of pregnancy by age and race of woman: 13- and 14-State areas, 1982-87**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Race, area, and year	Under 14			15-19 years						20-24 years	25-29 years	30-34 years	35-39 years	40 year and over
	All ages	14 years	14 years	Total	15 years	16 years	17 years	18 years	19 years					
<b>All races<sup>1</sup></b>														
<b>13-State area:</b>														<b>Ratio</b>
1987	339.8	1,701.1	1,148.0	685.7	916.7	838.4	735.7	713.9	553.8	403.9	234.0	210.2	309.8	568.1
1986	347.2	1,760.3	1,240.8	696.3	1,037.6	909.6	731.9	703.4	559.4	405.5	237.2	213.8	331.6	605.0
1985	355.7	1,728.1	1,371.1	720.8	1,084.3	892.6	751.2	739.6	589.3	410.1	237.2	218.5	344.9	652.7
1984	364.3	1,946.9	1,501.3	728.8	1,077.2	890.5	759.5	760.0	599.0	414.3	242.4	225.6	358.3	692.1
1983	360.8	2,008.5	1,360.1	707.2	1,013.0	860.1	720.7	746.9	586.3	397.5	239.8	229.4	370.0	720.7
1982	373.5	1,850.0	1,257.8	722.4	1,016.2	866.5	765.7	757.3	592.1	402.0	245.1	244.8	411.9	774.9
<b>14-State area:</b>														
1987	337.8	1,705.1	1,146.1	683.7	919.3	836.1	734.6	712.8	550.8	400.6	232.3	209.1	307.7	568.2
1986	344.9	1,748.3	1,236.3	693.5	1,040.4	908.0	731.3	700.9	555.1	401.7	235.4	212.1	330.1	605.1
<b>White</b>														
<b>13-State area:</b>														
1987	274.9	1,818.4	1,250.6	683.0	1,042.3	894.7	740.0	717.8	533.0	337.3	176.0	156.4	241.7	481.6
1986	285.7	2,066.7	1,361.9	704.9	1,145.2	991.6	767.3	717.5	547.2	344.6	179.8	161.4	266.7	529.1
1985	297.6	2,186.0	1,557.5	739.7	1,222.5	980.0	786.1	772.6	583.6	354.2	181.8	166.8	283.9	574.9
1984	307.4	2,088.7	1,845.9	756.8	1,239.3	984.1	811.1	804.1	598.8	360.4	187.3	172.8	294.0	607.2
1983	304.2	1,882.7	1,574.5	724.9	1,074.2	950.2	755.7	782.6	581.1	345.2	185.3	176.5	302.2	627.5
1982	319.8	2,277.1	1,516.8	751.8	1,147.4	949.7	820.9	805.4	593.4	352.8	191.9	189.1	337.5	680.5
<b>14-State area:</b>														
1987	274.0	1,829.4	1,245.7	680.4	1,044.7	890.1	738.3	716.5	529.5	335.1	175.4	156.1	240.6	483.6
1986	284.3	2,015.6	1,346.9	701.1	1,148.7	987.5	766.0	714.1	541.8	341.6	179.0	160.6	266.0	530.7
<b>Black</b>														
<b>13-State area:</b>														
1987	635.6	1,672.6	1,081.6	701.6	790.3	761.8	742.0	711.1	616.6	653.0	568.5	557.1	691.3	994.7
1986	634.4	1,609.3	1,153.5	686.8	933.1	792.7	666.9	678.8	598.9	647.8	578.0	550.0	704.8	973
1985	639.3	1,521.5	1,245.6	689.9	941.5	763.5	690.3	669.5	614.6	649.3	579.6	565.4	703.0	1,043.0
1984	646.3	1,884.2	1,290.8	678.1	914.9	747.9	664.1	667.9	611.4	651.4	587.6	591.2	737.3	1,083.3
1983	644.4	2,109.3	1,221.9	677.4	949.1	725.2	657.8	669.8	611.8	636.2	590.5	595.4	758.9	1,128.0
1982	649.2	1,662.9	1,064.5	668.9	868.5	740.5	661.5	656.3	602.8	636.9	594.0	625.8	833.4	1,208.1
<b>14-State area:</b>														
1987	635.2	1,672.6	1,080.2	701.3	790.4	761.2	742.4	710.7	616.2	652.6	567.9	557.1	691.0	993.9
1986	634.2	1,609.3	1,153.7	686.6	932.7	792.3	667.0	678.4	599.0	647.5	577.9	550.5	705.0	973.7

<sup>1</sup>Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures. See Technical notes.

**Table 5. Number of reported induced terminations of pregnancy by race and marital status of woman and percent distribution by age, according to race and marital status of woman: 13-State area and New York City, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Marital status and age of woman	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All women . . . . .	247,632	148,675	90,513	84,106	6,407	8,444
Percent distribution						
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years . . . . .	0.9	0.6	1.4	1.5	0.4	0.6
15-17 years . . . . .	9.9	10.1	9.5	9.9	4.3	9.5
18-19 years . . . . .	13.2	14.3	11.3	11.5	8.4	13.2
20-24 years . . . . .	33.1	33.2	32.9	33.3	27.6	33.3
25-29 years . . . . .	22.3	21.6	23.4	23.3	25.6	21.3
30-34 years . . . . .	12.8	12.3	13.5	13.2	18.5	13.9
35-39 years . . . . .	6.3	6.2	6.4	6.0	11.8	6.6
40 years and over . . . . .	1.6	1.7	1.5	1.3	3.4	1.7
Number						
Married women . . . . .	48,651	31,176	16,025	13,037	2,988	1,450
Percent distribution						
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years . . . . .	0.1	0.1	0.1	0.1	0.0	0.1
15-17 years . . . . .	0.9	1.0	0.6	0.7	0.4	1.0
18-19 years . . . . .	3.5	4.2	2.2	2.3	1.8	2.9
20-24 years . . . . .	25.8	27.3	22.9	24.0	18.3	26.3
25-29 years . . . . .	30.1	29.3	31.8	32.0	31.1	29.0
30-34 years . . . . .	22.8	21.7	24.8	24.8	25.0	23.4
35-39 years . . . . .	12.9	12.6	13.6	12.7	17.9	13.0
40 years and over . . . . .	4.0	4.0	3.9	3.5	5.4	4.5
Number						
Unmarried women . . . . .	189,425	112,776	71,469	68,190	3,279	5,180
Percent distribution						
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years . . . . .	1.1	0.8	1.7	1.8	0.7	0.7
15-17 years . . . . .	12.3	12.6	11.6	11.8	7.8	12.8
18-19 years . . . . .	15.7	17.1	13.4	13.4	14.6	16.6
20-24 years . . . . .	35.0	34.9	35.2	35.1	36.2	35.6
25-29 years . . . . .	20.2	19.5	21.5	21.5	20.4	18.6
30-34 years . . . . .	10.1	9.6	10.9	10.8	12.7	10.4
35-39 years . . . . .	4.5	4.4	4.7	4.6	6.1	4.6
40 years and over . . . . .	1.0	1.1	1.0	0.9	1.5	0.8
Number						
Not stated . . . . .	9,556	4,723	3,019	2,879	140	1,814
Percent distribution						
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years . . . . .	0.7	0.7	0.8	0.9	-	0.6
15-17 years . . . . .	8.2	9.4	7.2	7.4	3.6	6.8
18-19 years . . . . .	11.2	12.4	9.2	9.2	7.9	11.8
20-24 years . . . . .	31.9	32.3	30.9	31.4	20.9	32.5
25-29 years . . . . .	23.7	22.4	26.0	25.8	30.2	23.0
30-34 years . . . . .	14.9	13.9	15.9	15.8	18.0	16.1
35-39 years . . . . .	7.5	7.0	8.2	7.8	16.5	7.4
40 years and over . . . . .	1.8	1.9	1.7	1.6	2.9	1.9

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 6. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by years of school completed, according to race and age of woman: 12-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and years of school completed	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All ages . . . . .	280,555	175,164	99,095	92,788	6,307	6,296
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	2.3	2.1	2.6	2.4	5.8	2.7
9-11 years . . . . .	18.1	17.4	18.6	19.0	11.9	31.6
12 years . . . . .	49.9	48.4	52.8	53.2	47.4	43.8
13-15 years . . . . .	19.6	20.4	18.6	18.6	17.6	14.0
16 years or more . . . . .	10.1	11.6	7.4	6.8	17.3	7.9
Number						
Under 15 years . . . . .	2,426	1,006	1,375	1,354	21	45
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	65.9	61.1	69.5	69.7	60.0	54.5
9-11 years . . . . .	34.1	38.9	30.5	30.3	40.0	45.5
12 years . . . . .	-	-	-	-	-	-
13-15 years . . . . .	-	-	-	-	-	-
16 years or more . . . . .	-	-	-	-	-	-
Number						
15-17 years . . . . .	27,958	17,869	9,504	9,251	253	585
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	5.0	4.5	5.9	5.9	7.6	4.3
9-11 years . . . . .	73.2	74.1	71.4	71.5	66.0	76.7
12 years . . . . .	21.2	20.9	22.1	22.0	26.1	18.6
13-15 years . . . . .	0.6	0.6	0.6	0.6	0.4	0.5
16 years or more . . . . .	-	-	-	-	-	-
Number						
18-19 years . . . . .	37,642	25,470	11,346	10,834	512	826
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	1.0	1.1	0.9	0.7	3.7	1.3
9-11 years . . . . .	18.6	16.9	22.0	22.3	16.1	27.5
12 years . . . . .	61.7	61.8	61.8	61.9	58.7	58.3
13-15 years . . . . .	18.2	19.7	15.0	14.8	21.0	12.8
16 years or more . . . . .	0.4	0.5	0.3	0.3	0.6	0.2
Number						
20-24 years . . . . .	93,308	58,419	32,838	31,139	1,699	2,051
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	1.1	1.3	0.8	0.6	3.6	1.4
9-11 years . . . . .	12.1	11.2	13.0	13.1	10.5	27.5
12 years . . . . .	53.0	50.4	57.8	58.3	47.6	46.7
13-15 years . . . . .	25.0	26.5	22.8	22.6	25.7	17.7
16 years or more . . . . .	8.8	10.6	5.7	5.3	12.7	6.6

See footnote at end of table.

**Table 6. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by years of school completed, according to race and age of woman: 12-State area, 1987—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and years of school completed	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
25-29 years. . . . .	61,002	36,806	22,882	21,270	1,612	1,314
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years. . . . .	1.5	1.5	1.3	1.0	5.3	2.5
9-11 years . . . . .	10.3	9.7	10.6	10.8	8.3	26.4
12 years . . . . .	52.7	51.2	55.6	56.1	49.6	43.3
13-15 years. . . . .	20.7	20.4	21.6	22.0	15.7	15.8
16 years or more . . . . .	14.7	17.2	10.9	10.1	21.1	12.0
Number						
30-34 years. . . . .	34,763	20,974	12,996	11,822	1,174	793
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years. . . . .	1.8	1.7	1.9	1.4	6.9	3.1
9-11 years . . . . .	8.2	7.2	9.0	9.3	6.8	27.1
12 years . . . . .	50.6	48.6	54.2	54.7	48.3	42.9
13-15 years. . . . .	21.7	22.3	21.2	21.9	14.5	14.6
16 years or more . . . . .	17.6	20.2	13.7	12.7	23.6	12.3
Number						
35-39 years. . . . .	17,194	10,623	6,159	5,379	780	412
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years. . . . .	2.6	2.5	2.6	1.9	8.2	3.0
9-11 years . . . . .	7.8	6.1	10.0	10.0	9.4	24.4
12 years . . . . .	48.8	45.9	53.8	55.1	43.6	42.9
13-15 years. . . . .	19.7	20.5	18.6	19.2	14.2	11.3
16 years or more . . . . .	21.2	24.9	15.0	13.7	24.6	18.4
Number						
40 years and over. . . . .	4,608	3,038	1,450	1,230	220	120
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years. . . . .	3.9	3.1	5.3	4.2	11.7	7.7
9-11 years . . . . .	8.6	7.0	11.1	11.3	9.7	21.8
12 years . . . . .	48.1	45.7	53.3	55.9	38.3	43.6
13-15 years. . . . .	16.7	18.3	13.8	14.7	8.7	9.0
16 years or more . . . . .	22.7	25.9	16.5	14.0	31.6	17.9
Number						
Not stated. . . . .	1,654	959	545	509	36	150
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years. . . . .	2.2	2.2	1.4	1.0	5.7	9.1
9-11 years . . . . .	16.0	15.5	15.9	16.2	11.4	22.7
12 years . . . . .	56.3	52.4	63.4	64.0	54.3	50.0
13-15 years. . . . .	16.9	19.7	13.0	12.7	17.1	13.6
16 years or more . . . . .	8.6	10.3	6.4	6.0	11.4	4.5

NOTE: The 12-State area includes Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 7. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous live births, according to race and age of woman: 14-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and previous live births	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All ages . . . . .	300,310	189,014	100,922	94,025	6,897	10,374
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	51.1	58.5	37.5	36.8	45.9	51.4
1 previous live birth . . . . .	23.5	20.0	30.0	30.7	20.0	22.3
2 previous live births . . . . .	16.4	14.4	20.0	19.9	21.3	17.0
3 previous live births . . . . .	6.0	4.9	7.9	7.9	7.6	6.3
4 previous live births . . . . .	2.0	1.5	2.9	2.9	3.2	2.0
5 previous live births . . . . .	0.7	0.4	1.0	1.0	1.1	0.7
6 previous live births . . . . .	0.2	0.2	0.4	0.4	0.4	0.2
7 previous live births or more . . . . .	0.2	0.1	0.3	0.3	0.5	0.2
Number						
Under 15 years. . . . .	2,536	1,082	1,392	1,367	25	62
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	96.4	97.5	95.7	95.7	95.8	92.7
1 previous live birth . . . . .	2.6	1.5	3.3	3.3	—	7.3
2 previous live births . . . . .	0.7	0.7	0.7	0.6	4.2	—
3 previous live births . . . . .	0.2	0.2	0.3	0.3	—	—
4 previous live births . . . . .	0.0	0.1	—	—	—	—
5 previous live births . . . . .	—	—	—	—	—	—
6 previous live births . . . . .	—	—	—	—	—	—
7 previous live births or more . . . . .	—	—	—	—	—	—
Number						
15–17 years. . . . .	29,892	19,240	9,666	9,378	288	986
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	91.5	94.4	85.7	85.5	92.5	91.7
1 previous live birth . . . . .	7.7	5.2	12.8	13.0	6.4	7.8
2 previous live births . . . . .	0.7	0.4	1.4	1.4	1.1	0.6
3 previous live births . . . . .	0.1	0.0	0.1	0.1	—	—
4 previous live births . . . . .	0.0	0.0	—	—	—	—
5 previous live births . . . . .	0.0	—	0.0	0.0	—	—
6 previous live births . . . . .	0.0	—	0.0	0.0	—	—
7 previous live births or more . . . . .	0.0	0.0	—	—	—	—
Number						
18–19 years. . . . .	40,585	27,613	11,568	10,983	585	1,404
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	79.1	85.4	64.1	62.9	86.2	79.5
1 previous live birth . . . . .	16.7	11.8	28.3	29.2	10.8	15.5
2 previous live births . . . . .	3.6	2.4	6.4	6.7	1.9	4.3
3 previous live births . . . . .	0.5	0.3	1.0	1.0	0.7	0.7
4 previous live births . . . . .	0.1	0.0	0.2	0.2	—	—
5 previous live births . . . . .	0.0	0.0	0.0	0.0	—	—
6 previous live births . . . . .	0.0	0.0	0.0	0.0	—	—
7 previous live births or more . . . . .	0.0	0.0	0.0	0.0	0.3	—

See footnote at end of table.

**Table 7. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous live births, according to race and age of woman: 14-State area, 1987—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and previous live births	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
20-24 years . . . . .	99,842	63,055	33,416	31,530	1,886	3,371
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	54.9	63.9	38.3	36.6	66.6	55.0
1 previous live birth . . . . .	27.9	22.7	37.6	38.6	20.8	27.2
2 previous live births . . . . .	13.0	10.5	17.8	18.3	9.3	12.8
3 previous live births . . . . .	3.2	2.4	4.8	4.9	2.7	3.9
4 previous live births . . . . .	0.7	0.5	1.2	1.2	0.5	0.7
5 previous live births . . . . .	0.1	0.1	0.2	0.2	—	0.2
6 previous live births . . . . .	0.0	0.0	0.0	0.0	0.1	0.1
7 previous live births or more . . . . .	0.0	0.0	0.0	0.0	0.1	0.0
Number						
25-29 years . . . . .	65,210	39,707	23,340	21,586	1,754	2,163
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	35.5	43.1	22.9	21.4	41.5	37.0
1 previous live birth . . . . .	28.5	26.0	33.0	33.6	25.8	26.4
2 previous live births . . . . .	23.9	21.4	28.0	28.4	23.4	24.4
3 previous live births . . . . .	8.4	6.9	10.9	11.3	5.8	8.6
4 previous live births . . . . .	2.6	1.9	3.6	3.7	2.9	2.5
5 previous live births . . . . .	0.7	0.5	1.0	1.1	0.5	0.8
6 previous live births . . . . .	0.2	0.1	0.4	0.4	0.1	0.2
7 previous live births or more . . . . .	0.1	0.1	0.2	0.2	—	0.0
Number						
30-34 years . . . . .	37,236	22,613	13,267	11,996	1,271	1,356
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	24.6	31.0	13.8	13.0	20.6	26.1
1 previous live birth . . . . .	25.5	24.4	27.4	27.9	23.3	24.9
2 previous live births . . . . .	29.5	28.0	31.8	31.4	36.0	30.2
3 previous live births . . . . .	13.1	11.1	16.6	17.0	12.8	11.7
4 previous live births . . . . .	4.7	3.8	6.4	6.6	4.1	4.6
5 previous live births . . . . .	1.6	1.1	2.5	2.5	1.9	1.5
6 previous live births . . . . .	0.6	0.4	0.9	0.9	0.7	0.7
7 previous live births or more . . . . .	0.4	0.2	0.6	0.6	0.6	0.3
Number						
35-39 years . . . . .	18,422	11,477	6,257	5,436	821	688
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	17.9	22.2	9.9	9.4	13.0	22.2
1 previous live birth . . . . .	22.1	22.1	22.6	23.8	14.6	18.1
2 previous live births . . . . .	32.1	32.5	31.4	30.5	37.3	32.0
3 previous live births . . . . .	16.3	14.9	18.7	18.7	19.2	17.2
4 previous live births . . . . .	6.7	5.2	9.5	9.6	8.9	6.2
5 previous live births . . . . .	2.9	2.0	4.5	4.6	3.8	2.7
6 previous live births . . . . .	1.0	0.6	1.9	1.9	1.5	0.2
7 previous live births or more . . . . .	0.9	0.5	1.5	1.5	1.7	1.4

See footnote at end of table.

Table 7. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous live births, according to race and age of woman: 14-State area, 1987—Con.

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and previous live births	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
40 years and over . . . . .	4,894	3,239	1,469	1,238	231	186
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	13.4	16.1	7.6	7.8	6.6	12.0
1 previous live birth . . . . .	16.2	16.8	15.8	16.3	12.7	10.2
2 previous live births . . . . .	32.2	33.0	29.6	28.0	38.0	40.4
3 previous live births . . . . .	19.2	19.7	18.3	18.4	17.9	18.7
4 previous live births . . . . .	9.9	8.4	13.1	13.1	13.5	9.6
5 previous live births . . . . .	4.8	3.7	7.4	8.1	3.9	3.6
6 previous live births . . . . .	2.2	1.4	3.9	4.1	2.6	1.8
7 previous live births or more . . . . .	2.1	1.0	4.3	4.2	4.8	3.6
Number						
Not stated . . . . .	1,693	988	547	511	36	158
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	51.0	54.7	45.6	46.0	39.4	46.4
1 previous live birth . . . . .	22.4	20.7	25.9	26.0	24.2	20.5
2 previous live births . . . . .	17.4	17.0	18.1	17.5	27.3	17.0
3 previous live births . . . . .	6.3	5.3	6.8	6.9	6.1	11.6
4 previous live births . . . . .	1.8	1.2	2.5	2.5	3.0	2.7
5 previous live births . . . . .	0.5	0.4	0.6	0.6	—	0.9
6 previous live births . . . . .	0.3	0.3	0.2	0.2	—	—
7 previous live births or more . . . . .	0.3	0.3	0.2	0.2	—	0.5

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 8. Number of reported induced terminations of pregnancy by marital status and age of woman and percent distribution by previous live births, according to marital status and age of woman: 13-State area and New York City, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

<i>Age of woman and previous live births</i>	<i>All women</i>	<i>Married</i>	<i>Unmarried</i>	<i>Not stated</i>
		Number		
All ages . . . . .	247,632	48,651	189,425	9,556
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	49.6	18.7	58.1	36.1
1 previous live birth . . . . .	24.3	29.6	22.7	28.7
2 previous live births . . . . .	16.8	33.0	12.5	21.6
3 previous live births . . . . .	6.1	12.3	4.4	8.6
4 previous live births . . . . .	2.1	4.2	1.5	3.0
5 previous live births . . . . .	0.7	1.4	0.5	1.2
6 previous live births . . . . .	0.3	0.5	0.2	0.5
7 previous live births or more . . . . .	0.2	0.4	0.1	0.4
		Number		
Under 15 years. . . . .	2,227	38	2,122	67
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	96.4	38.9	97.4	96.1
1 previous live birth. . . . .	2.6	25.0	2.2	2.0
2 previous live births . . . . .	0.7	19.4	0.4	2.0
3 previous live births . . . . .	0.3	13.9	0.0	-
4 previous live births . . . . .	0.0	2.8	-	-
5 previous live births . . . . .	-	-	-	-
6 previous live births . . . . .	-	-	-	-
7 previous live births or more . . . . .	-	-	-	-
		Number		
15-17 years. . . . .	24,315	413	23,136	766
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	91.2	56.7	92.0	84.8
1 previous live birth. . . . .	7.9	37.4	7.3	13.1
2 previous live births . . . . .	0.7	5.7	0.6	1.6
3 previous live births . . . . .	0.1	-	0.1	0.4
4 previous live births . . . . .	0.0	0.2	0.0	-
5 previous live births . . . . .	0.0	-	0.0	-
6 previous live births . . . . .	0.0	-	0.0	-
7 previous live births or more . . . . .	0.0	-	-	0.2
		Number		
18-19 years. . . . .	32,464	1,715	29,701	1,048
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	77.8	36.0	80.5	68.8
1 previous live birth. . . . .	17.8	46.8	15.9	23.6
2 previous live births . . . . .	3.8	15.1	3.0	6.1
3 previous live births . . . . .	0.5	1.8	0.4	1.3
4 previous live births . . . . .	0.1	0.2	0.0	-
5 previous live births . . . . .	0.0	0.1	0.0	-
6 previous live births . . . . .	0.0	-	0.0	-
7 previous live births or more . . . . .	0.0	0.1	0.0	0.1

See footnote at end of table

**Table 8. Number of reported induced terminations of pregnancy by marital status and age of woman and percent distribution by previous live births, according to marital status and age of woman: 13-State area and New York City, 1987—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

<i>Age of woman and previous live births</i>	<i>All women</i>	<i>Married</i>	<i>Unmarried</i>	<i>Not stated</i>
	Number			
20–24 years . . . . .	81,631	12,488	66,170	2,973
	Percent distribution			
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	53.0	25.1	58.8	39.4
1 previous live birth . . . . .	29.1	39.7	26.9	36.2
2 previous live births . . . . .	13.6	27.1	10.9	17.9
3 previous live births . . . . .	3.4	6.5	2.7	4.8
4 previous live births . . . . .	0.7	1.3	0.6	1.3
5 previous live births . . . . .	0.2	0.3	0.1	0.2
6 previous live births . . . . .	0.0	0.0	0.0	0.1
7 previous live births or more . . . . .	0.0	0.1	0.0	0.1
	Number			
25–29 years . . . . .	54,890	14,571	38,114	2,205
	Percent distribution			
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	34.1	18.4	40.7	24.2
1 previous live birth . . . . .	29.2	29.9	28.8	30.9
2 previous live births . . . . .	24.4	35.0	20.1	29.5
3 previous live births . . . . .	8.5	12.1	7.1	10.3
4 previous live births . . . . .	2.6	3.5	2.2	3.3
5 previous live births . . . . .	0.7	0.8	0.6	1.2
6 previous live births . . . . .	0.2	0.3	0.2	0.4
7 previous live births or more . . . . .	0.1	0.1	0.1	0.2
	Number			
30–34 years . . . . .	31,503	11,018	19,092	1,393
	Percent distribution			
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	24.0	13.6	30.4	16.6
1 previous live birth . . . . .	25.8	23.3	27.3	26.0
2 previous live births . . . . .	29.6	37.8	24.6	31.9
3 previous live births . . . . .	13.1	16.3	11.1	16.0
4 previous live births . . . . .	4.8	5.8	4.2	5.8
5 previous live births . . . . .	1.6	1.8	1.5	2.2
6 previous live births . . . . .	0.6	0.8	0.5	0.7
7 previous live births or more . . . . .	0.4	0.5	0.4	0.7
	Number			
35–39 years . . . . .	15,457	6,259	8,501	697
	Percent distribution			
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	17.5	11.0	22.7	10.5
1 previous live birth . . . . .	22.6	19.1	25.0	23.7
2 previous live births . . . . .	31.6	37.6	27.3	31.0
3 previous live births . . . . .	16.3	18.6	14.4	18.8
4 previous live births . . . . .	7.0	8.4	5.9	8.3
5 previous live births . . . . .	3.0	3.2	2.6	4.7
6 previous live births . . . . .	1.1	1.1	1.0	2.0
7 previous live births or more . . . . .	1.0	1.0	0.9	1.1

See footnote at end of table

**Table 8. Number of reported induced terminations of pregnancy by marital status and age of woman and percent distribution by previous live births, according to marital status and age of woman: 13-State area and New York City, 1987—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

<i>Age of woman and previous live births</i>	<i>All women</i>	<i>Married</i>	<i>Unmarried</i>	<i>Not stated</i>
		Number		
40 years and over . . . . .	4,055	1,916	1,970	169
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	12.9	9.6	16.5	8.3
1 previous live birth . . . . .	16.6	14.1	18.6	20.5
2 previous live births . . . . .	31.9	35.2	29.1	28.2
3 previous live births . . . . .	19.0	19.9	18.3	17.9
4 previous live births . . . . .	10.0	11.1	8.9	10.3
5 previous live births . . . . .	5.1	5.5	4.8	4.5
6 previous live births . . . . .	2.3	2.5	1.9	4.5
7 previous live births or more . . . . .	2.2	2.1	1.9	5.8
		Number		
Not stated . . . . .	1,090	233	619	238
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	44.6	17.9	51.2	55.3
1 previous live birth . . . . .	24.8	28.7	23.6	23.9
2 previous live births . . . . .	19.8	37.2	15.6	12.2
3 previous live births . . . . .	7.5	11.7	6.1	6.9
4 previous live births . . . . .	2.4	2.7	2.9	0.5
5 previous live births . . . . .	0.6	0.9	0.5	0.5
6 previous live births . . . . .	0.1	—	—	0.5
7 previous live births or more . . . . .	0.3	0.9	0.2	—

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 9. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous induced terminations, according to race and age of woman: 14-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and previous induced terminations	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All ages . . . . .	300,310	189,014	100,922	94,025	6,897	10,374
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	55.6	60.4	47.0	46.4	56.3	53.1
1 previous induced termination . . . . .	27.2	25.5	30.2	30.4	27.5	28.6
2 previous induced terminations . . . . .	10.7	9.0	13.7	14.0	9.9	11.3
3 previous induced terminations or more . . . . .	6.5	5.1	9.1	9.3	6.3	6.9
Number						
Under 15 years. . . . .	2,536	1,082	1,392	1,367	25	62
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	92.4	94.9	90.7	90.8	83.3	87.3
1 previous induced termination . . . . .	6.5	4.3	8.0	7.8	16.7	12.7
2 previous induced terminations . . . . .	0.7	0.6	0.9	0.9	—	—
3 previous induced terminations or more . . . . .	0.3	0.2	0.4	0.5	—	—
Number						
15-17 years. . . . .	29,892	19,240	9,666	9,378	288	986
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	83.6	87.3	76.7	76.5	83.0	80.1
1 previous induced termination . . . . .	14.3	11.3	19.9	20.0	15.2	16.4
2 previous induced terminations . . . . .	1.8	1.3	2.7	2.8	1.8	2.1
3 previous induced terminations or more . . . . .	0.3	0.2	0.7	0.7	—	0.6
Number						
18-19 years. . . . .	40,585	27,613	11,568	10,983	585	1,404
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	72.6	76.9	62.6	61.9	74.5	70.9
1 previous induced termination . . . . .	21.7	18.8	28.4	28.9	20.7	22.2
2 previous induced terminations . . . . .	4.4	3.3	7.0	7.2	3.0	5.0
3 previous induced terminations or more . . . . .	1.3	0.9	2.0	2.0	1.9	2.0
Number						
20-24 years. . . . .	99,842	63,055	33,416	31,530	1,886	3,371
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	54.9	59.4	46.6	45.7	60.8	53.1
1 previous induced termination . . . . .	29.8	28.1	32.8	33.1	27.4	31.6
2 previous induced terminations . . . . .	10.4	8.8	13.5	13.8	8.0	10.0
3 previous induced terminations or more . . . . .	4.9	3.7	7.2	7.4	3.8	5.3

See notes at end of table.

**Table 9. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by previous induced terminations, according to race and age of woman: 14-State area, 1987—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and previous induced terminations	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
25-29 years . . . . .	65,210	39,707	23,340	21,586	1,754	2,163
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	43.3	47.5	36.5	35.2	53.3	39.4
1 previous induced termination . . . . .	31.2	30.7	31.9	32.2	28.8	33.4
2 previous induced terminations . . . . .	15.2	13.4	18.1	18.6	10.7	16.4
3 previous induced terminations or more . . . . .	10.3	8.4	13.5	14.0	7.2	10.9
Number						
30-34 years . . . . .	37,236	22,613	13,267	11,996	1,271	1,356
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	41.4	46.2	33.6	32.2	46.6	38.8
1 previous induced termination . . . . .	30.5	29.7	31.6	31.6	32.0	31.6
2 previous induced terminations . . . . .	16.1	14.2	19.0	19.7	12.9	17.9
3 previous induced terminations or more . . . . .	12.1	9.9	15.7	16.5	8.6	11.7
Number						
35-39 years . . . . .	18,422	11,477	6,257	5,436	821	688
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	45.5	51.3	35.2	33.5	46.6	44.0
1 previous induced termination . . . . .	28.4	27.1	30.9	31.4	27.6	27.8
2 previous induced terminations . . . . .	14.6	12.4	18.6	19.1	15.4	15.8
3 previous induced terminations or more . . . . .	11.4	9.1	15.3	16.1	10.5	12.5
Number						
40 years and over . . . . .	4,894	3,239	1,469	1,238	231	186
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	51.3	57.3	38.6	37.2	45.6	51.0
1 previous induced termination . . . . .	25.9	24.4	29.5	29.5	29.4	23.2
2 previous induced terminations . . . . .	12.6	10.0	18.2	19.0	14.0	14.8
3 previous induced terminations or more . . . . .	10.1	8.3	13.8	14.3	11.0	11.0
Number						
Not stated . . . . .	1,693	988	547	511	36	158
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced terminations . . . . .	54.5	57.3	48.1	47.5	58.1	61.8
1 previous induced termination . . . . .	26.0	26.5	25.9	26.4	19.4	22.7
2 previous induced terminations . . . . .	12.3	10.4	15.9	16.5	6.5	10.9
3 previous induced terminations or more . . . . .	7.1	5.8	10.0	9.6	16.1	4.5

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 10. Number of reported induced terminations of pregnancy by race of woman and percent distribution by period of gestation, according to race of woman: 13-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
Total . . . . .	295,800	184,656	100,884	93,999	6,885	10,260
Percent distribution						
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.0	13.4	12.3	11.8	19.1	11.3
7 weeks . . . . .	16.5	17.4	15.0	14.7	19.6	14.2
8 weeks . . . . .	19.0	19.8	17.5	17.3	20.1	19.9
9 weeks . . . . .	15.3	15.7	14.5	14.6	13.6	14.9
10 weeks . . . . .	12.0	12.0	12.2	12.3	9.7	11.3
11 weeks . . . . .	8.6	8.4	9.0	9.2	6.8	8.1
12 weeks . . . . .	4.9	4.5	5.7	5.8	3.7	4.7
13 weeks . . . . .	2.8	2.5	3.4	3.5	1.9	3.8
14 weeks . . . . .	1.7	1.5	2.1	2.2	1.3	2.7
15 weeks . . . . .	1.2	1.0	1.6	1.6	0.7	1.6
16 weeks . . . . .	1.0	0.8	1.3	1.4	0.6	1.5
17 weeks . . . . .	0.8	0.6	1.1	1.1	0.6	1.4
18 weeks . . . . .	0.8	0.6	1.0	1.1	0.5	1.2
19 weeks . . . . .	0.6	0.5	0.8	0.8	0.4	0.8
20 weeks . . . . .	0.5	0.4	0.7	0.8	0.4	0.7
21 weeks or more . . . . .	1.2	0.9	1.7	1.8	0.9	1.8

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 11. Number of reported induced terminations of pregnancy by age of woman and percent distribution by period of gestation, according to age of woman: 13-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All ages	Under		15-19 years							20-24 years	25-29 years	30-34 years	35-39 years	40 years and over	Not stated
		14 years	14 years	Total	15 years	16 years	17 years	18 years	19 years							
Number																
Total . . . . .	295,800	682	1,831	69,086	4,774	9,953	14,457	19,934	19,968	98,366	64,367	36,794	18,227	4,824	1,623	
Percent distribution																
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
6 weeks or less. . . . .	13.0	7.5	6.9	8.6	6.6	7.0	8.6	9.2	9.3	11.8	14.9	17.4	19.5	18.7	13.2	
7 weeks . . . . .	16.5	9.7	9.6	12.5	10.0	10.9	11.8	12.8	14.0	16.0	18.3	19.9	20.4	20.0	16.6	
8 weeks . . . . .	19.0	15.7	15.2	17.0	15.1	15.5	16.1	17.5	18.4	19.0	19.9	20.4	20.7	21.2	21.0	
9 weeks . . . . .	15.3	13.0	13.0	15.9	14.7	15.8	16.0	15.9	16.2	15.5	15.1	14.8	14.0	13.9	14.3	
10 weeks . . . . .	12.0	11.4	12.8	13.7	13.7	14.2	13.8	14.0	13.3	12.6	11.3	10.3	9.6	9.5	11.8	
11 weeks . . . . .	8.6	8.5	11.8	10.7	11.3	11.7	10.9	10.5	10.1	9.0	7.8	6.6	6.0	6.2	8.1	
12 weeks . . . . .	4.9	6.6	7.9	6.3	7.3	6.9	6.3	6.2	5.8	5.1	4.3	3.6	3.0	3.6	4.5	
13 weeks . . . . .	2.8	7.5	4.4	3.8	4.4	4.4	4.0	3.7	3.5	3.0	2.3	1.9	1.8	1.7	1.9	
14 weeks . . . . .	1.7	2.9	3.7	2.4	3.1	2.7	2.7	2.2	2.1	1.8	1.4	1.2	1.0	1.0	1.8	
15 weeks . . . . .	1.2	2.8	2.7	1.6	2.1	2.0	1.8	1.3	1.6	1.2	1.0	0.8	0.7	0.5	1.3	
16 weeks . . . . .	1.0	1.5	2.2	1.5	2.2	1.9	1.7	1.4	1.0	1.1	0.8	0.6	0.6	0.5	0.8	
17 weeks . . . . .	0.8	2.1	1.6	1.2	1.5	1.6	1.3	1.0	1.0	0.8	0.6	0.5	0.6	0.5	0.8	
18 weeks . . . . .	0.8	1.9	1.5	1.2	1.7	1.4	1.2	1.1	1.0	0.7	0.6	0.5	0.5	0.5	0.8	
19 weeks . . . . .	0.6	2.2	1.4	0.9	1.5	0.9	0.9	0.8	0.7	0.6	0.4	0.4	0.4	0.7	0.7	
20 weeks . . . . .	0.5	2.1	1.6	0.8	1.3	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.4	0.4	0.6	
21 weeks or more . . . . .	1.2	4.7	3.5	1.9	3.4	2.2	1.9	1.6	1.5	1.2	0.9	0.8	0.8	1.1	1.8	

<sup>1</sup> Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.  
 NOTE: The 13-State area includes Colorado, Kansas, Indiana, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 12. Number of reported induced terminations of pregnancy by years of school completed, race, and age of woman and percent distribution by period of gestation, according to race, age, and years of school completed by woman: 11-State area, 1987

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation, <sup>1</sup> age and race of woman	Total	Years of school completed					
		0-8 years	9-11 years	12 years	13-15 years	16 years or over	Not stated
All races <sup>2</sup>							
All ages . . . . .	276,045	6,056	46,846	130,413	50,978	26,099	15,653
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.5	10.3	9.9	13.4	13.7	19.9	15.7
7-8 weeks . . . . .	35.4	30.1	28.4	35.2	39.0	43.0	35.1
9-12 weeks . . . . .	40.4	42.3	45.3	40.8	40.0	31.9	37.2
13-15 weeks . . . . .	5.7	9.0	8.4	5.7	4.2	2.6	5.9
16-20 weeks . . . . .	3.8	6.2	5.9	3.8	2.2	1.9	4.7
21 weeks or more . . . . .	1.3	2.1	2.0	1.2	0.8	0.8	1.4
Number							
10-17 years . . . . .	29,653	2,662	19,426	5,540	152	-	1,873
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	8.0	6.0	7.4	10.0	10.5	-	11.1
7-8 weeks . . . . .	26.9	23.7	26.4	29.9	32.9	-	27.8
9-12 weeks . . . . .	46.7	45.2	47.7	45.0	44.1	-	43.9
13-15 weeks . . . . .	9.0	12.2	9.2	7.0	4.6	-	9.0
16-20 weeks . . . . .	6.9	9.4	6.9	5.8	5.3	-	6.4
21 weeks or more . . . . .	2.4	3.5	2.4	2.2	2.3	-	1.7
Number							
18-24 years . . . . .	128,791	1,353	17,040	67,928	28,085	7,763	6,622
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	11.6	10.9	9.6	11.2	11.9	17.4	13.1
7-8 weeks . . . . .	34.0	28.1	27.9	33.1	37.8	42.3	33.6
9-12 weeks . . . . .	42.8	46.1	45.6	43.3	42.4	34.4	40.8
13-15 weeks . . . . .	6.3	8.4	9.0	6.6	4.6	2.9	6.4
16-20 weeks . . . . .	4.0	5.2	6.0	4.4	2.3	2.2	4.9
21 weeks or more . . . . .	1.4	1.3	2.0	1.4	1.0	0.9	1.2
Number							
25 years and over . . . . .	116,017	2,010	10,161	56,168	22,513	18,217	6,948
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	17.1	15.7	15.4	16.5	15.9	21.0	19.4
7-8 weeks . . . . .	39.0	39.9	33.2	38.1	40.6	43.2	38.3
9-12 weeks . . . . .	36.2	35.9	40.4	37.3	37.1	30.8	31.9
13-15 weeks . . . . .	4.2	5.0	5.9	4.4	3.8	2.5	4.7
16-20 weeks . . . . .	2.7	2.7	3.7	2.8	2.1	1.8	4.1
21 weeks or more . . . . .	0.9	0.8	1.4	0.8	0.6	0.7	1.5
Number							
Not stated. . . . .	1,584	31	219	777	228	119	210
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.1	6.5	6.9	12.9	15.9	16.9	16.3
7-8 weeks . . . . .	37.6	41.9	31.8	37.2	38.1	46.6	38.9
9-12 weeks . . . . .	38.7	38.7	45.2	38.3	41.2	33.1	33.5
13-15 weeks . . . . .	5.1	9.7	7.8	5.0	3.1	0.8	6.4
16-20 weeks . . . . .	3.7	-	5.5	4.4	1.8	2.5	2.5
21 weeks or more . . . . .	1.8	3.2	2.8	2.2	-	-	2.1

See footnotes at end of table.

Table 12. Number of reported induced terminations of pregnancy by years of school completed, race, and age of woman and percent distribution by period of gestation, according to race, age, and years of school completed by woman: 11-State area, 1987—Con.

Data include only induced terminations of pregnancy occurring in the reporting area

Period of gestation, <sup>1</sup> age and race of woman	Total	Years of school completed					Not stated
		0-8 years	9-11 years	12 years	13-15 years	16 years or more	
White							
All ages . . . . .	170,806	3,436	27,745	78,134	32,692	18,686	10,113
Number							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	14.1	10.8	9.4	13.8	14.5	20.8	16.8
7-8 weeks . . . . .	37.0	30.9	29.9	36.8	40.9	43.8	35.8
9-12 weeks . . . . .	40.1	43.1	47.1	40.8	38.6	30.6	37.1
13-15 weeks . . . . .	4.8	8.4	7.4	4.9	3.5	2.3	4.9
16-20 weeks . . . . .	2.9	5.3	4.6	2.9	1.8	1.8	4.2
21 weeks or more. . . . .	1.0	1.6	1.5	0.9	0.7	0.7	1.1
Percent distribution							
Number							
10-17 years . . . . .	18,163	1,241	12,202	3,442	94	-	1,184
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	8.7	6.2	7.7	11.5	10.6	-	12.6
7-8 weeks . . . . .	28.9	25.6	28.4	32.1	38.3	-	28.3
9-12 weeks . . . . .	47.5	45.7	48.6	45.1	41.5	-	45.4
13-15 weeks . . . . .	7.9	11.5	8.1	5.9	6.4	-	7.5
16-20 weeks . . . . .	5.3	8.3	5.3	4.2	2.1	-	5.5
21 weeks or more. . . . .	1.7	2.7	1.9	1.2	1.1	-	0.6
Number							
18-24 years . . . . .	81,785	978	9,942	41,797	18,869	5,829	4,370
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	12.1	10.3	9.1	11.6	12.4	18.0	14.3
7-8 weeks . . . . .	35.8	27.8	29.0	34.8	39.7	43.3	34.8
9-12 weeks . . . . .	42.8	47.8	48.1	43.6	41.4	33.5	40.2
13-15 weeks . . . . .	5.3	8.1	7.8	5.6	3.8	2.7	5.5
16-20 weeks . . . . .	3.1	4.7	4.6	3.3	1.8	1.9	4.2
21 weeks or more. . . . .	1.0	1.2	1.4	1.1	0.9	0.7	1.0
Number							
25 years and over. . . . .	69,959	1,199	5,479	32,476	13,576	12,774	4,455
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	17.9	16.0	14.0	16.8	17.3	22.1	20.3
7-8 weeks . . . . .	40.6	38.8	34.8	39.8	42.6	44.0	38.7
9-12 weeks . . . . .	35.1	36.5	41.7	36.7	34.7	29.3	32.1
13-15 weeks . . . . .	3.5	5.4	5.3	3.8	3.1	2.2	3.6
16-20 weeks . . . . .	2.2	2.6	3.0	2.2	1.7	1.7	3.9
21 weeks or more. . . . .	0.7	0.8	1.1	0.7	0.5	0.7	1.4
Number							
Not stated. . . . .	899	18	122	419	153	83	104
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	14.7	11.1	6.6	14.2	17.9	18.3	19.6
7-8 weeks . . . . .	38.9	38.9	32.2	39.3	36.4	47.6	42.2
9-12 weeks . . . . .	38.0	44.4	47.9	37.1	41.1	31.7	29.4
13-15 weeks . . . . .	4.5	5.6	8.3	4.3	4.0	-	4.9
16-20 weeks . . . . .	2.6	-	4.1	3.3	0.7	2.4	2.0
21 weeks or more. . . . .	1.2	-	0.8	1.8	-	-	2.0

See footnotes at end of table.

**Table 12. Number of reported induced terminations of pregnancy by years of school completed, race, and age of woman and percent distribution by period of gestation, according to race, age, and years of school completed by woman: 11-State area, 1987—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation, <sup>1</sup> age and race of woman	Total	Years of school completed					Not stated
		0-8 years	9-11 years	12 years	13-15 years	16 years or more	
<b>Black</b>							
All ages . . . . .	92,762	2,159	17,013	47,586	16,658	6,056	3,290
Number							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Percent distribution							
6 weeks or less . . . . .	11.9	8.5	9.6	12.3	12.0	16.0	11.7
7-8 weeks . . . . .	32.0	27.4	25.4	32.3	35.3	40.9	31.2
9-12 weeks . . . . .	41.9	42.4	43.9	41.5	43.1	36.7	39.4
13-15 weeks . . . . .	7.3	10.6	10.2	7.0	5.7	3.4	8.4
16-20 weeks . . . . .	5.2	8.1	7.9	5.2	3.0	2.2	6.6
21 weeks or more . . . . .	1.8	3.1	2.9	1.7	1.0	0.9	2.6
Number							
10-17 years . . . . .	10,600	1,361	6,737	1,959	55	-	488
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	6.8	5.7	6.7	7.3	7.3	-	8.4
7-8 weeks . . . . .	23.5	22.2	23.0	25.9	23.6	-	25.7
9-12 weeks . . . . .	45.9	45.0	46.5	45.3	50.9	-	41.5
13-15 weeks . . . . .	10.9	12.7	11.3	8.7	1.8	-	11.5
16-20 weeks . . . . .	9.2	10.2	9.2	8.9	10.9	-	8.4
21 weeks or more . . . . .	3.7	4.1	3.4	3.9	5.5	-	4.5
Number							
18-24 years . . . . .	41,960	269	6,277	24,055	8,367	1,627	1,365
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	10.2	8.6	9.4	10.1	10.5	14.4	9.5
7-8 weeks . . . . .	30.4	29.1	25.4	30.0	33.7	39.1	28.9
9-12 weeks . . . . .	43.5	42.9	43.1	43.4	44.9	38.6	44.0
13-15 weeks . . . . .	8.1	10.8	11.0	8.3	6.4	3.6	8.2
16-20 weeks . . . . .	5.8	7.1	8.3	6.1	3.4	2.9	7.3
21 weeks or more . . . . .	2.0	1.5	2.9	2.0	1.2	1.4	2.1
Number							
25 years and over. . . . .	39,695	524	3,921	21,266	8,175	4,400	1,409
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	15.1	15.5	15.2	15.3	13.7	16.6	15.0
7-8 weeks . . . . .	35.9	39.8	29.8	35.4	36.9	41.5	35.4
9-12 weeks . . . . .	39.1	35.2	41.0	39.0	41.2	36.0	34.3
13-15 weeks . . . . .	5.3	5.2	7.1	5.5	5.0	3.3	7.5
16-20 weeks . . . . .	3.5	3.3	5.1	3.8	2.5	2.0	5.3
21 weeks or more . . . . .	1.1	1.0	1.8	1.1	0.7	0.7	2.4
Number							
Not stated. . . . .	507	5	78	306	61	29	28
Percent distribution							
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	10.4	-	7.8	11.7	9.8	10.3	7.1
7-8 weeks . . . . .	33.8	40.0	27.3	33.3	39.3	44.8	32.1
9-12 weeks . . . . .	42.0	40.0	44.2	41.3	44.3	41.4	39.3
13-15 weeks . . . . .	5.6	-	7.8	5.7	1.6	3.4	10.7
16-20 weeks . . . . .	5.6	-	7.8	5.7	4.9	-	7.7
21 weeks or more . . . . .	2.6	20.0	5.2	2.3	-	-	3.6

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.<sup>2</sup>Includes races other than white and black.

NOTE: The 11-State area includes Indiana, Kansas, Missouri, Montana, New York, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 13. Number of reported induced terminations of pregnancy by procedure and percent distribution by procedure, according to period of gestation: 13-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All procedures	Suction curettage	Sharp curettage	Saline instillation	Prostaglandin instillation	Hysterotomy	Hysterectomy	Other	
									Number
Total <sup>2</sup>	295,800	278,580	5,402	2,898	1,286	33	25	2,674	
	Percent distribution								
All periods of gestation	100.0	95.8	1.9	1.0	0.4	0.0	0.0	0.9	
6 weeks or less	100.0	97.9	0.9	0.1	0.0	0.0	0.0	1.0	
7 weeks	100.0	97.4	0.9	0.0	0.0	0.0	0.0	1.6	
8 weeks	100.0	98.1	0.9	0.1	0.0	-	0.0	0.9	
9 weeks	100.0	98.5	1.0	0.1	0.0	0.0	0.0	0.4	
10 weeks	100.0	98.3	1.2	0.1	0.0	0.0	-	0.3	
11 weeks	100.0	97.8	1.7	0.2	0.1	0.0	0.0	0.2	
12 weeks	100.0	95.6	3.3	0.4	0.3	0.0	0.0	0.3	
13 weeks	100.0	93.1	4.9	0.8	0.6	0.0	0.0	0.6	
14 weeks	100.0	88.1	7.4	2.4	1.0	0.0	-	1.0	
15 weeks	100.0	81.7	9.4	4.3	2.7	0.0	0.0	1.9	
16 weeks	100.0	73.1	9.2	10.0	5.2	0.1	-	2.4	
17 weeks	100.0	67.1	9.7	13.4	6.8	0.1	0.1	2.8	
18 weeks	100.0	60.9	8.3	18.0	9.2	-	-	3.6	
19 weeks	100.0	59.8	7.8	20.2	8.0	0.1	0.1	4.0	
20 weeks	100.0	61.3	8.8	20.9	5.9	0.1	-	3.2	
21 weeks or more	100.0	66.0	8.6	16.6	5.3	0.1	-	3.4	
Not stated	100.0	88.0	3.3	3.7	3.5	-	0.4	1.1	

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

<sup>2</sup>Includes procedure not stated.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 14. Number and percent distribution of reported induced terminations of pregnancy by metropolitan-nonmetropolitan residence, race, and age of woman: 14-State area, 1987

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman	All areas			Metropolitan areas			Nonmetropolitan areas		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
	Number								
All ages . . . . .	300,310	189,014	94,025	261,023	156,666	88,720	39,287	32,348	5,305
Under 14 years. . . . .	685	238	424	611	202	390	74	36	34
14 years . . . . .	1,851	844	943	1,537	620	864	314	224	79
15-19 years. . . . .	70,477	46,853	20,361	59,196	37,290	19,040	11,281	9,563	1,321
15 years. . . . .	4,876	2,837	1,842	3,996	2,143	1,879	880	694	163
16 years. . . . .	10,190	6,548	3,198	8,447	5,114	2,946	1,743	1,434	252
17 years. . . . .	14,826	9,855	4,338	12,501	7,858	4,089	2,325	1,997	249
18 years. . . . .	20,278	13,850	5,461	16,992	10,991	5,142	3,286	2,859	319
19 years. . . . .	20,307	13,763	5,522	17,260	11,184	5,184	3,047	2,579	338
20-24 years. . . . .	99,842	63,055	31,530	87,229	52,693	29,770	12,613	10,362	1,760
25-29 years. . . . .	65,210	39,707	21,586	57,751	33,701	20,467	7,459	6,006	1,119
30-34 years. . . . .	37,236	22,613	11,996	32,750	18,984	11,361	4,486	3,629	635
35-39 years. . . . .	18,422	11,477	5,436	16,158	9,611	5,157	2,264	1,866	279
40 years and over . . . . .	4,894	3,239	1,238	4,225	2,688	1,164	669	551	74
Not stated . . . . .	1,693	988	511	1,566	877	507	127	111	4
	Percent distribution								
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 14 years. . . . .	0.2	0.1	0.5	0.2	0.1	0.4	0.2	0.1	0.6
14 years . . . . .	0.6	0.4	1.0	0.6	0.4	1.0	0.8	0.7	1.5
15-19 years. . . . .	23.6	24.9	21.8	22.8	23.9	21.6	28.8	29.7	24.9
15 years. . . . .	1.6	1.5	2.0	1.5	1.4	1.9	2.2	2.2	3.1
16 years. . . . .	3.4	3.5	3.4	3.3	3.3	3.3	4.5	4.4	4.8
17 years. . . . .	5.0	5.2	4.6	4.8	5.0	4.6	5.9	6.2	4.7
18 years. . . . .	6.8	7.4	5.8	6.5	7.1	5.8	8.4	8.9	6.0
19 years. . . . .	6.8	7.3	5.9	6.7	7.2	5.9	7.8	8.0	6.1
20-24 years. . . . .	33.4	33.5	33.7	33.6	33.8	33.7	32.2	32.1	33.1
25-29 years. . . . .	21.8	21.1	23.1	22.3	21.6	23.2	19.0	18.6	21.1
30-34 years. . . . .	12.5	12.0	12.8	12.6	12.2	12.9	11.5	11.3	12.0
35-39 years. . . . .	6.2	6.1	5.8	6.2	6.2	5.8	5.8	5.8	5.3
40 years and over . . . . .	1.6	1.7	1.3	1.6	1.7	1.3	1.7	1.7	1.4

<sup>1</sup> Includes races other than white and black.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 15. Number of reported induced terminations of pregnancy by residence status of woman and percent distribution by period of gestation, according to residence status of woman: 13-State area, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All induced terminations occurring in area	Induced terminations occurring in area among U.S. residents	Induced terminations occurring in State of residence		Induced terminations among interstate nonresidents	Induced terminations among nonresidents of United States
			Total	Occurring in county of residence		
Number						
Total . . . . .	296,695	295,800	273,733	191,290	82,443	895
Percent distribution						
All periods of gestation. . . . .	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.0	13.0	13.2	14.0	11.2	5.5
7 weeks . . . . .	16.4	16.5	16.6	17.2	15.1	12.2
8 weeks . . . . .	19.0	19.0	19.2	19.0	19.5	18.5
9 weeks . . . . .	15.3	15.3	15.3	14.9	16.2	17.1
10 weeks . . . . .	12.0	12.0	12.1	11.8	12.7	13.3
11 weeks . . . . .	8.6	8.6	8.6	8.1	9.7	11.0
12 weeks . . . . .	4.9	4.9	4.9	4.7	5.5	6.9
13 weeks . . . . .	2.8	2.8	2.8	2.8	2.9	3.1
14 weeks . . . . .	1.7	1.7	1.7	1.7	1.7	2.9
15 weeks . . . . .	1.2	1.2	1.2	1.2	1.1	1.6
16 weeks . . . . .	1.0	1.0	1.0	1.0	0.9	1.1
17 weeks . . . . .	0.8	0.8	0.8	0.8	0.7	0.9
18 weeks . . . . .	0.8	0.8	0.7	0.7	0.7	0.7
19 weeks . . . . .	0.6	0.6	0.5	0.5	0.5	1.2
20 weeks . . . . .	0.5	0.5	0.4	0.5	0.4	0.7
21 weeks or more . . . . .	1.2	1.2	1.0	1.0	0.9	3.2

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 16. Number of reported induced terminations of pregnancy in the reporting States and New York City by place of residence, according to place of occurrence: United States, each State, New York City, and specified places outside the United States, 1987**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Place of residence	Place of occurrence																
	Total	New York															
		Colorado	Indiana	Kansas	Maine	Missouri	Montana	Total	Upstate New York	New York City	Oregon	Rhode Island	South Carolina	Tennessee	Utah	Vermont	Virginia
All places of residence	301,462	12,232	13,876	5,941	4,767	17,574	3,175	149,811	52,826	96,985	11,147	7,529	12,992	21,622	4,556	3,310	32,930
United States . . . . .	300,310	12,229	13,875	5,941	4,510	17,574	2,593	149,519	52,678	96,841	11,145	7,526	12,987	21,622	4,556	3,309	32,924
Alabama . . . . .	160	-	1	-	-	-	-	-	-	-	1	-	4	152	-	1	1
Alaska . . . . .	13	-	-	-	-	-	-	2	1	1	11	-	-	-	-	-	-
Arizona . . . . .	24	13	-	1	-	3	2	1	-	1	-	-	-	2	1	-	1
Arkansas . . . . .	852	-	1	6	-	79	-	-	-	-	-	-	-	765	-	-	1
California . . . . .	147	9	1	-	2	3	1	16	5	11	82	1	2	3	8	-	19
Colorado . . . . .	11,384	11,362	2	1	2	2	1	4	4	-	2	1	2	1	3	-	1
Connecticut . . . . .	843	-	-	-	3	-	-	770	272	498	-	64	2	-	-	2	2
Delaware . . . . .	29	-	-	-	-	-	-	25	-	25	-	1	-	-	-	-	3
District of Columbia . . . . .	299	-	-	-	1	-	-	59	1	58	-	-	1	1	-	-	237
Florida . . . . .	104	5	5	1	5	6	-	32	12	20	-	3	15	15	-	2	15
Georgia . . . . .	792	-	2	-	-	-	-	4	2	2	-	-	224	546	1	-	15
Hawaii . . . . .	7	-	-	-	2	-	-	-	-	-	3	1	-	-	-	-	1
Idaho . . . . .	222	3	-	1	-	-	16	-	-	-	36	-	-	1	165	-	-
Illinois . . . . .	1,678	3	216	3	2	1,415	1	17	3	14	-	1	3	11	2	-	4
Indiana . . . . .	13,431	1	13,399	3	1	14	-	7	3	4	-	-	2	3	-	-	1
Iowa . . . . .	44	1	2	22	-	16	-	1	1	-	-	-	-	2	-	-	-
Kansas . . . . .	4,058	29	-	3,584	-	440	1	2	-	2	-	-	1	-	-	-	1
Kentucky . . . . .	839	1	3	-	-	29	-	2	-	2	-	-	2	798	-	-	4
Louisiana . . . . .	14	2	1	1	-	1	1	2	-	2	-	-	1	2	-	-	3
Maine . . . . .	3,731	-	-	-	3,708	-	-	18	2	16	-	1	1	-	-	2	1
Maryland . . . . .	685	1	1	-	-	1	-	162	5	157	-	5	3	-	-	3	509
Massachusetts . . . . .	2,143	-	-	-	279	-	-	177	21	156	1	1,654	-	-	1	28	3
Michigan . . . . .	141	-	122	-	1	1	2	4	2	2	-	-	-	6	-	-	5
Minnesota . . . . .	12	2	-	1	-	1	2	3	-	3	1	-	-	-	1	-	1
Mississippi . . . . .	1,191	-	-	1	-	2	1	-	-	-	-	-	3	1,181	-	-	3
Missouri . . . . .	17,815	1	2	2,214	-	15,490	-	3	-	3	-	-	-	104	-	-	1
Montana . . . . .	2,309	11	-	-	-	-	2,293	1	-	1	2	-	-	-	2	-	-
Nebraska . . . . .	203	141	-	44	-	14	1	-	-	-	-	-	1	1	-	-	-
Nevada . . . . .	34	1	-	-	-	-	-	-	-	-	1	1	-	-	31	-	-
New Hampshire . . . . .	802	1	-	-	459	1	-	18	1	17	-	8	1	-	-	314	-
New Jersey . . . . .	2,268	2	2	-	3	-	-	2,238	191	2,047	1	4	1	1	-	1	15
New Mexico . . . . .	242	237	1	-	-	-	1	1	1	-	-	-	-	-	1	-	1
New York . . . . .	144,849	5	4	2	9	2	-	144,082	50,908	93,174	1	9	5	6	2	654	68
Upstate New York . . . . .	53,646	1	1	1	8	-	-	52,938	49,318	3,620	-	7	5	2	2	650	31
New York City . . . . .	91,203	4	3	1	1	2	-	91,144	1,590	89,554	1	2	-	4	-	4	37

Table 1. Number of reported induced terminations of pregnancy in the reporting State, New York City by place of residence, according to place of occurrence, United States, each State, New York City, and specified places outside the United States, 1987—Con.

[Data include only induced terminations of pregnancy occurring in the reporting area]

Place of residence	Place of occurrence																
	Total	New York															
		Colorado	Indiana	Kansas	Maine	Missouri	Montana	Total	Upstate	New	Oregon	Rhode	South	Tennessee	Utah	Vermont	Virginia
									New	York		Island	Carolina				
North Carolina . . . . .	1,028	—	1	1	1	2	—	18	2	16	1	—	303	31	—	—	670
North Dakota . . . . .	23	1	—	—	—	—	20	1	1	—	—	—	1	—	—	—	—
Ohio . . . . .	142	—	94	—	1	4	1	21	8	13	1	2	4	3	2	2	7
Oklahoma . . . . .	69	2	—	46	—	—	—	—	—	—	—	—	—	3	—	—	—
Oregon . . . . .	10,182	1	—	—	—	—	2	—	—	—	10,177	—	—	1	—	—	1
Pennsylvania . . . . .	1,620	1	3	1	2	—	1	1,583	1,189	394	—	2	2	3	—	2	20
Rhode Island . . . . .	5,833	—	—	—	6	—	—	61	3	58	—	5,763	—	—	—	2	1
South Carolina . . . . .	12,407	2	—	—	—	1	—	8	1	7	—	1	12,382	2	—	—	11
South Dakota . . . . .	122	98	—	2	—	1	21	—	—	—	—	—	—	—	—	—	—
Tennessee . . . . .	17,694	—	5	—	—	—	—	4	2	2	—	—	5	17,660	—	—	7
Texas . . . . .	64	8	5	6	—	—	—	11	6	5	—	1	2	9	—	—	6
Utah . . . . .	4,214	78	—	—	—	—	—	—	—	—	2	—	—	—	4,133	—	—
Vermont . . . . .	2,348	1	—	—	—	—	—	30	17	13	—	1	1	1	—	2,295	—
Virginia . . . . .	31,562	2	1	—	2	1	1	123	14	109	2	1	11	305	—	—	31,113
Washington . . . . .	828	—	1	—	2	—	—	1	—	1	819	1	—	—	1	—	—
West Virginia . . . . .	180	—	—	—	—	—	—	6	—	6	—	—	1	2	—	—	171
Wisconsin . . . . .	5	—	—	—	—	—	—	1	—	1	—	—	1	1	1	—	—
Wyoming . . . . .	624	204	—	—	—	—	—	—	—	—	1	—	—	—	200	1	1
Outside United States																	
Puerto Rico . . . . .	3	—	—	—	—	—	—	2	—	2	—	—	—	—	—	—	1
Virgin Islands . . . . .	2	—	—	—	—	—	—	2	—	2	—	—	—	—	—	—	—
Canada . . . . .	1,039	2	1	—	257	—	580	195	142	53	—	3	—	—	—	1	—
Cuba . . . . .	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Mexico . . . . .	1	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—
Remainder of world . . . . .	106	1	—	—	—	—	2	92	5	87	2	—	5	—	—	—	4

## Technical notes

### Nature and sources of data

Data in this report are based on information for the same 14 States in 1987 as in 1986: Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

The reporting States provided data on magnetic tape for individual events coded from copies of the original reports of induced termination of pregnancy. These data were provided to the National Center for Health Statistics (NCHS) through the Vital Statistics Cooperative Program. NCHS collects information on individual abortions occurring in selected States with mandatory abortion reporting requirements. The State abortion reporting forms include information on the demographic characteristics and pregnancy history of the woman and the nature of the procedure. The NCHS data system, based on reports of individual abortions, enables detailed cross-classification.

Two other organizations currently publish information on induced abortions—the Center for Chronic Disease Prevention and Health Promotion, which, like NCHS, is a component of the Centers for Disease Control, and the Alan Guttmacher Institute, a private organization. The Center for Chronic Disease Prevention and Health Promotion relies primarily on aggregate abortion data reported by State health agencies, hospitals, and medical institutions, and the Alan Guttmacher Institute obtains its information from a nationwide survey of abortion providers.

### Item completeness

Item completeness, which is measured by the percent of records with codes other than “not stated,” is shown in table I for the varying number of States included in the analysis of each item. States were excluded from analysis if either information was not collected on the item or if no information for the item was reported for 25 percent or more of the records. Table I

Table I. Percent completeness for items on reporting form and number of reporting States: 1986 and 1987

Item	1987		1986	
	Percent completeness	Number of reporting States	Percent completeness	Number of reporting States
Age of woman . . . . .	99.4	14	99.4	14
Education . . . . .	94.2	12	94.1	12
Marital status of woman <sup>1</sup> . . . . .	96.1	13	97.5	13
Period of gestation . . . . .	99.8	13	99.8	13
Previous induced terminations . . . . .	96.2	14	95.7	14
Previous live births . . . . .	96.3	14	96.1	14
Race of woman . . . . .	96.5	14	97.1	14
Resident status <sup>2</sup> . . . . .	100.0	14	100.0	14
Type of procedure . . . . .	98.3	13	99.3	13

<sup>1</sup>New York City also reported marital status.

<sup>2</sup>Resident status unknown is allocated at the coding level; see Technical notes.

NOTE: The reporting area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

shows that resident status was 100 percent complete for 1986 and 1987. Residence information, if unknown or incomplete, is allocated at the coding level according to the following rules: First, records with unknown residence are allocated to place of occurrence; second, records where only State of residence is reported, with no city or county specified, and the State named is different from the State of occurrence, are allocated to the largest city of the State of residence.

### Classification of data

Procedures used for coding and classifying the items on the Report of Induced Termination of Pregnancy are described in the NCHS vital statistics instruction manual, part 10, “Classification and coding instructions for induced termination of pregnancy records, 1987” (11). Codes for geographic areas are described in part 8, “Vital records geographic classification, 1982” (12). Additional information on classifying selected items can be found in the technical appendix, vital statistics of the United States, vol. I (13). Definitions of types of procedures used may be found in the publication, *Legalized abortion and the public health* (14). Data on period of gestation are computed from information on “date of termination” and “date of last normal menses.” If “date of last normal menses” is not stated, or computed

gestation in weeks is not possible, “physician’s estimate of gestation in weeks” is used.

### Ratios, percents, and medians

Measures of incidence in this report are based on ratios of induced terminations of pregnancy to live birth. These ratios refer to the number of induced terminations and live births occurring in the reporting States to residents of the reporting States. In the computation of ratios, “not stated” cases have been distributed according to the reported or known proportion for a particular characteristic. Ratios are computed before distributed numbers are rounded. Ratios of induced terminations of pregnancy provide an approximate indication of the frequency of induced abortions to the frequency of pregnancies.

Two forms of induced abortion ratios (ratios per 1,000 live births—type I and ratios per 1,000 live births and induced abortions—type II) are shown in table II. Induced abortion ratios in the text of this report are of type I. These ratios are larger than those of type II, because the latter includes a larger number of events in the denominator than the former. Both ratios have the same number of events—induced terminations—in the numerator of the ratio. For type I ratios, age differentials are greater, that is, the range between the largest and the smallest ratios by

**Table II. Type I and Type II induced termination of pregnancy ratios by race and age of woman: 14-State area, 1987**

[Type I ratio is per 1,000 live births. Type II ratio is per 1,000 live births and induced terminations. Induced terminations of pregnancy and live births are only those occurring in the area to residents of the area]

Age of woman	Type I			Type II		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
All ages . . . . .	337.8	274.0	635.2	252.5	215.1	388.5
Under 14 years . . . . .	1,705.1	1,829.4	1,672.6	630.1	646.1	625.8
14 years . . . . .	1,146.1	1,245.7	1,080.2	533.9	554.7	519.2
15-19 years . . . . .	683.7	680.4	701.3	406.1	404.9	412.2
15 years . . . . .	919.3	1,044.7	790.4	476.9	510.9	441.4
16 years . . . . .	836.1	890.1	761.2	455.4	470.9	432.2
17 years . . . . .	734.6	738.3	742.4	423.5	424.7	426.1
18 years . . . . .	712.8	716.5	710.7	416.1	417.4	415.4
19 years . . . . .	550.8	529.5	616.2	355.2	346.2	381.2
20-24 years . . . . .	400.6	335.1	652.6	286.0	251.0	394.9
25-29 years . . . . .	232.3	175.4	567.9	188.5	149.3	362.2
30-34 years . . . . .	209.1	156.1	557.1	172.9	135.0	357.7
35-39 years . . . . .	307.7	240.6	691.0	235.3	194.0	408.6
40 years and over . . . . .	568.2	483.6	993.9	362.3	326.0	498.4

<sup>1</sup>Includes races other than white and black.

NOTE: The 14-State area includes Colorado, Indiana, Kansas, Maine, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

age of women is greater than for type II ratios. Induced abortion differentials by race are also more pronounced using type I than type II ratios.

In the computation of percent distributions and medians, "not stated" cases are excluded. Proportional allocation of "not stated" cases in computing these measures would yield exactly the same results. In addition, medians were

calculated using single years of age, single years of education, and single weeks of gestation.

In the computation of percent change, the following general formula was used:

$$\frac{R_1 - R_2}{R_2} \cdot 100$$

where  $R_1$  equals the ratio of interest in 1987 and  $R_2$  equals the ratio of interest in 1986. The total percent change is a weighted average of the change for the groups of interest. Although it is unusual, the total percent change can be greater or smaller than either of the percent changes in its component parts, as seen in tables B and H.

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## Induced Terminations of Pregnancy: Reporting States, 1985 and 1986

by Kenneth D. Kochanek, M.A., Division of Vital Statistics

### Highlights

In 1986, there were 298,719 abortions reported as occurring to residents within the 13 States reporting this information to the National Center for Health Statistics, compared with 305,938 in 1985 and 306,792 in 1984. The abortion ratio of 347.2 abortions per 1,000 live births in 1986 decreased from the ratio of 355.7 for the previous year, and continued the decline observed from 1984 to 1985. From 1985 to 1986, ratios decreased for both white and black women, but the decreases were greatest among white married women in most age groups.

The 1986 abortion ratio for black women was 2.2 times that for white women, about the same as in earlier years. The median age of induced termination of pregnancy was slightly higher for black women (23.8 years) than for white women (23.4 years), but the age at which the greatest number of abortions occurred was the same for white as for black women in 1986 (21 years). The highest abortion ratios were for the youngest and the oldest women, a pattern observed for both black and white women. However, for almost every age group, ratios were higher for black women than for white women.

Induced abortion ratios are associated with marital status; both white and black married women have much lower ratios than unmarried women of the respective race groups. Abortion ratios are also associated with educational attainment. For white women, ratios generally decrease with increasing educational attainment, but for black women, ratios generally increase with increasing educational attainment.

In terms of previous pregnancy history, about 5 out of 10 women having induced terminations in 1986 had no previous live births, and about 6 out of 10 never had a prior induced termination. The median duration of gestation was 11 weeks for women having induced terminations in 1986. It was longer for black women, on the average, than for

white women, longer for less educated women, and longer for out-of-State residents than for in-State residents.

In 1986, suction curettage was the type of procedure used in 96 percent of all induced terminations. Complications were reported for less than 1 percent of all terminations. Abortion ratios among women residing in metropolitan areas were 2.5 times those among nonmetropolitan residents.

### Introduction

This report on induced terminations of pregnancy is based on information reported to the National Center for Health Statistics (NCHS) by 13 States in 1985 and 1986. Earlier reports showed data for 5 States in 1977, 8 States in 1978, 13 States in 1979, 12 States in 1980 and 1981, and 13 States in 1982-84 (NCHS, 1981, 1982, 1983a, 1985a, 1986, and 1987). The States in this report include Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Although New York City is a separate registration area from the remainder of New York State, the data for both areas are combined except where otherwise noted.

Data are based on individual reports of induced abortions submitted to State vital registration offices. Reports of induced terminations are submitted to these offices in accordance with the laws and statutes of the respective States. The reporting States provided data on magnetic tape for individual events coded from copies of the original reports of induced termination of pregnancy.

Induced abortions are distinguished in NCHS statistics from spontaneous abortions or fetal deaths. Induced abortion "means the purposeful interruption of pregnancy with the intention other than to produce a live-born infant or to remove a dead fetus which does not result in a live birth"

(NCHS, 1978). All other abortions are "spontaneous." In this report, the term "abortion" refers to "induced abortion" or "induced termination of pregnancy"; all three terms are used interchangeably.

Abortion data are shown on both an occurrence and a residence basis. Detailed tables at the end of the report and selected text tables show data on all abortions to U.S. residents occurring in the reporting area. The occurrence tables represent characteristics and factors associated with the utilization of health services within the geographic area in which the abortions occurred. In contrast, ratio tables within the text exclude abortions to nonresidents of the reporting States. Such tables show the frequency of abortions in relation to demographic characteristics associated with births to residents of the area. The distinction between occurrence and residence data is made in the text and in the headnotes of the tables.

Data are analyzed using percent distributions, medians, and ratios (see Technical notes). Abortion ratios are based on the number of abortions and live births occurring in the reporting States to residents of those States. Ratios are expressed as the number of abortions per 1,000 live births. Such ratios provide an approximate indication of the frequency of abortions in relation to the frequency of pregnancies.

An estimate of pregnancies could include the sum of live births, induced terminations, and spontaneous fetal deaths; however, it is common practice to use only live births in calculating these ratios (Tietze, 1979; Centers for Disease Control, 1983). A comparison of abortion ratios per 1,000 live births and per 1,000 live births plus induced terminations is shown in the Technical notes.

The magnitude of the ratios is affected by the distribution of both live births and abortions according to such characteristics of the female population as age, race,

marital status, and educational attainment in a specified State or group of States. The magnitude of the rates is also affected by the characteristics of women having abortions and the distribution of those characteristics in the population of reproductive-aged women in a State. Therefore, ratios for the same demographic group, such as white females, may vary for different multi-State areas. Accordingly, caution should be used in generalizing from ratios reported for the multi-State reporting area to the entire U.S. population.

## Number of abortions and abortion ratios

In 1986, a total of 298,719 abortions were reported as occurring to U.S. residents within the 13-State reporting area, a decrease of 2.4 percent from the 305,938 abortions reported for the same area in 1985. Of the 1986 abortions, 17,653, or 5.9 percent, involved nonresidents of the area. The induced abortion ratio for the 13-State area also declined. The ratio in 1986 was 347.2 abortions per 1,000 live births, a decrease of 2.4 percent from the ratio of 355.7 for 1985 (table A). Both the number of abortions and abortion ratios have decreased in the reporting areas since 1984.

## Age and race

One-fourth of the induced abortions in 1986 in the 13-State area were to women under 20 years of age (table 1). More than one-third (34 percent) occurred to women ages 20–24 years. The 1986 distribution of abortions by age of woman was similar to that observed in 1985 and previous years.

**Table A. Ratios of induced terminations of pregnancy, 1985 and 1986, and percent change, 1985–86, by race and age of woman: 13-State area**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area among residents of the area]

Age of woman	1986			1985			All races <sup>1</sup>	White	Black
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black			
	Ratio						Percent change <sup>2</sup>		
All ages . . . . .	347.2	285.7	634.4	355.7	297.6	639.3	-2.4	-4.0	-0.8
Under 14 years . . . . .	1,760.3	2,066.7	1,609.3	1,728.1	2,186.0	1,521.5	1.9	-5.5	5.8
14 years . . . . .	1,240.8	1,361.9	1,153.5	1,371.1	1,557.5	1,245.6	-9.5	-12.6	-7.4
15–19 years . . . . .	696.3	704.9	686.8	720.8	739.7	689.9	-3.4	-4.7	-0.4
15 years . . . . .	1,037.6	1,145.2	933.1	1,084.3	1,222.5	941.5	-4.3	-6.3	-0.9
16 years . . . . .	909.6	991.6	792.7	892.6	980.0	763.5	1.9	1.2	3.8
17 years . . . . .	731.9	767.3	666.9	751.2	786.1	690.3	-2.6	-2.4	-3.4
18 years . . . . .	703.4	717.5	678.8	739.6	772.6	669.5	-4.9	-7.1	1.4
19 years . . . . .	559.4	547.2	598.9	589.3	583.6	614.6	-5.1	-6.2	-2.6
20–24 years . . . . .	405.5	344.6	647.8	410.1	354.2	649.3	-1.1	-2.7	-0.2
25–29 years . . . . .	237.2	179.8	578.0	237.2	181.8	579.6	-	-1.1	-0.3
30–34 years . . . . .	213.8	161.4	550.8	218.5	166.8	565.4	-2.2	-3.2	-2.6
35–39 years . . . . .	331.6	266.7	704.8	344.9	283.9	703.0	-3.9	-6.1	0.3
40 years and over . . . . .	605.0	529.1	973.8	652.7	574.9	1,043.8	-7.3	-8.0	-6

<sup>1</sup> Includes races other than white and black.

<sup>2</sup> See Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures. See Technical notes.

The pattern of abortions by age for white and black women has remained similar since 1978. In 1986, as in previous years, a slightly larger proportion of white women who had abortions (60 percent) were under 25 years of age compared with black women (57 percent). The median age at pregnancy termination was slightly higher for black women (23.8 years) than for white women (23.4 years). In 1985, the peak age was slightly lower for white women (20 years) than for black women (21 years). However, in 1986, the age at which the greatest number of abortions occurred was the same for both races, 21 years.

Abortion ratios vary by age of women at termination (table A). Ratios are higher at the extremes of the age distribution of the childbearing period, that is, among women 14 years of age and under and 40 years of age and over of both race groups. However, women in these age groups combined accounted for a total of only 1.1 percent of all induced terminations and all live births in 1986.

For white women, there were 285.7 abortions per 1,000 live births in 1986 compared with 634.4 for black women. The ratio of abortions to live births was higher for white teens than for black teens, but for women 20 years of age and over the ratio was higher for black than for white women in every 5-year age group.

From 1985 to 1986, abortion ratios for residents of the 13-State area decreased by 4.0 percent for white women and 0.8 percent for black women (table A). For white women, these decreases were reflected in decreased abortion ratios from 1985 to 1986 for all 5-year age groups. White women 14 years of age showed the largest decrease, 12.6 percent, from 1985 to 1986. For black women the trend by age varied. Black women under 14 years of age showed an increase (6 percent), but ratios for older black women decreased. In contrast, substantial declines in abortion ratios for black women occurred among those 14 years of age and 40 years and over, down 7.4 and 6.7 percent, respectively.

## Marital status

Twelve States (Colorado, Indiana, Kansas, Missouri, Montana, Oregon, Rhode Island, South Carolina,

Tennessee, Utah, Vermont, and Virginia) and New York City collected information on the marital status of women having induced terminations. Of the abortions occurring in this area in 1986, 21.4 percent were reported for married women and 78.6 percent for unmarried women (table 2).

Married women who had abortions tended to be older than unmarried women who had abortions. About two-thirds (68 percent) of married women were 25 years of age and over compared with one-third (35 percent) of unmarried women. The median age of married women having abortions in 1986 was 27.9 years, 5.3 years older than the median age of 22.6 years for unmarried women.

Black women who had abortions tended to be older than white women who had abortions, regardless of marital status. Of married black women, 71.7 percent were 25 years of age and over compared with 66.1 percent of married white women. Similarly, among unmarried women having abortions, 37.6 percent of black women were 25 years of age and over, compared with 33.8 percent of white women. In 1986, the median age of married black and white women obtaining an abortion was 28.2 and 27.6 years, respectively, compared with 23.0 years for unmarried black women and 22.4 years for unmarried white women.

Induced abortion ratios by marital status and race for events to residents occurring in the 12-State area are shown in table B. Data for New York were excluded because information was not obtained on mothers' marital status for abortions occurring in upstate New York. In 1986, married women had fewer than 1 induced abortion for every 10 live births, and unmarried women had 9 induced abortions for every 10 live births (table B). Among married women, the abortion ratio for black women was nearly three times that for white women. However, among unmarried women, the relationship by race was reversed. For white unmarried women, the abortion ratio was 2½ times that for black unmarried women in 1986.

From 1985 to 1986, abortion ratios for unmarried women declined, but those for married women increased. For all races combined, the abortion ratio for married women increased by 0.8 percent from 1985 to 1986. For unmarried women, it decreased by 7.4 percent.

Table B. Ratios of induced terminations of pregnancy, 1985 and 1986, and percent change, 1985-86, by marital status and race of woman: 12-State area

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area among residents of the area]

Race of woman	1986			1985			Percent change <sup>1</sup>		
	All women	Married	Unmarried	All women	Married	Unmarried	All women	Married	Unmarried
	Ratio								
All races <sup>2</sup> . . . . .	246.9	64.1	925.6	251.1	63.6	999.6	-1.7	0.8	-7.4
White . . . . .	223.4	54.8	1,263.4	230.5	54.9	1,418.7	-3.1	-0.2	-10.9
Black . . . . .	378.2	152.8	522.8	371.6	150.9	518.1	1.8	1.3	0.9

<sup>1</sup> See Technical notes.  
<sup>2</sup> Includes races other than white and black.

NOTE: The 12-State area includes Colorado, Indiana, Kansas, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures. See Technical notes.

**Table C. Ratios of induced terminations of pregnancy, by educational attainment, race, and age of woman: 11-State area, 1985 and 1986**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area among residents of the area]

Race and age of woman	Years of schooling completed											
	1986						1985					
	Total	0-8 years	9-11 years	12 years	13-15 years	16 years or more	Total	0-8 years	9-11 years	12 years	13-15 years	16 years or more
All races <sup>1</sup>	353.0	258.1	378.3	401.1	363.5	217.8	359.8	239.5	382.7	402.2	382.2	230.2
10-17 years	861.0	520.6	821.4	1,870.6	4,356.4	-	872.5	546.5	843.9	1,719.4	4,469.8	-
18-24 years	454.6	154.3	261.2	466.8	675.0	863.4	462.3	132.0	264.9	466.0	714.4	904.5
25 years and over	250.6	216.1	288.7	321.1	226.7	165.5	253.0	187.7	279.8	323.0	231.4	172.6
White	288.4	215.4	340.1	320.0	295.6	184.6	299.1	211.5	349.8	325.1	315.9	197.2
10-17 years	910.5	418.6	883.9	2,111.3	4,729.2	-	927.5	464.0	916.1	1,872.4	*5,884.2	-
18-24 years	399.1	137.9	220.5	396.2	614.8	811.1	413.2	123.6	227.8	400.2	667.2	862.8
25 years and over	190.1	206.4	242.2	237.2	167.2	136.9	194.3	194.2	238.9	241.8	170.8	143.8
Black	633.8	385.8	473.9	730.9	710.5	597.1	636.0	344.8	472.5	732.2	736.7	619.5
10-17 years	795.9	673.0	733.8	1,567.7	*4,084.6	-	800.7	685.8	742.0	1,525.6	3,559.1	-
18-24 years	644.8	237.0	376.3	708.0	895.3	1,251.2	642.2	182.9	375.5	707.7	901.5	1,242.9
25 years and over	590.7	222.4	396.7	725.0	584.5	502.8	595.9	185.3	385.4	730.3	615.0	521.4

<sup>1</sup> Includes races other than white and black.

NOTE: The 11-State area includes Indiana, Kansas, Missouri, Montana, New York, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures. See Technical notes.

### Educational attainment

For an 11-State area (Indiana, Kansas, Missouri, Montana, New York, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia), 1986 data are available on induced abortions by educational attainment of the women (table 3). Area residents having abortions had about the same median educational attainment (12.6 years) as their counterparts carrying their pregnancies to term, 12.7 years.

In 1986, abortion ratios for white women were lowest for those with 8 years or less education or 16 years or more schooling. For black women, ratios increased to a peak education level of 12 years, then tapered off (table C). Abortion ratios by educational attainment and race varied among age groups. Among women 18-24 years of age, abortion ratios increased as educational attainment increased, regardless of race. In contrast, abortion ratios among women 25 years of age and over increased with

increasing education only to a point, then fell. Among black women this reversal occurred at 13-15 years of schooling, and among white women it occurred at 12 years of education. The pattern of abortion ratios by educational attainment for all ages combined may be affected by the interrelation of age and years of school completed; very young women may not have completed their schooling. Further, the ratios for women of high educational attainment may reflect the lower ratios that characterize older women.

### Previous pregnancies

#### Previous live births

In 1986, more than one-half (52 percent) of the women who obtained abortions in the 13-State area had no previous live birth (table D). The percent was greater

**Table D. Percent distribution of induced terminations of pregnancy by number of previous live births of woman, according to race: 13-State area, 1985 and 1986**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Number of previous live births	1986			1985		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
	Percent distribution					
Total	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth	52.0	59.4	37.0	53.3	60.8	36.6
1 previous live birth	23.3	19.8	30.8	22.7	19.2	31.0
2 previous live births	15.9	13.9	19.5	15.5	13.5	19.7
3 previous live births	5.8	4.7	7.9	5.6	4.6	7.9
4 previous live births	1.9	1.4	3.0	1.9	1.4	3.0
5 previous live births	0.7	0.4	1.1	0.6	0.4	1.1
6 previous live births	0.2	0.2	0.4	0.2	0.2	0.4
7 previous live births or more	0.2	0.1	0.3	0.2	0.1	0.3

<sup>1</sup> Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table E. Percent of induced terminations of pregnancy to women with no previous induced termination, by race and age of woman: 13-State area, 1985 and 1986**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman	1986			1985		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
All ages . . . . .	56.3	60.6	47.2	57.4	61.3	48.3
Under 15 years. . . . .	91.9	92.7	91.3	93.6	95.3	92.0
15-17 years. . . . .	84.9	87.6	79.2	85.3	87.7	80.1
18-19 years. . . . .	73.2	76.7	64.0	74.4	77.5	65.4
20-24 years. . . . .	55.4	59.8	45.9	56.1	59.9	46.4
25-29 years. . . . .	43.4	47.2	35.5	43.7	47.1	35.7
30-34 years. . . . .	42.4	46.7	33.4	43.7	47.7	35.1
35-39 years. . . . .	46.5	52.3	33.8	47.5	52.8	35.2
40 years and over . . . . .	51.6	58.2	35.5	52.8	58.7	37.7

<sup>1</sup> Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

among white than among black women, 59.4 percent compared with 37.0 percent, and was inversely related to the age of the woman having an abortion: The younger the woman, the more likely it was that she had never had a previous live birth (table 4). Among women aged 15-17 years, 92.2 percent had no previous live birth. In contrast, among women aged 40 years and over, only 11.3 percent had no previous live birth. Although the same pattern existed for women of both races, at every age, black women having abortions were more likely than white women to have had previous live births.

For a 12-State area (Colorado, Indiana, Kansas, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia) and New York City, data are available on the number of previous live births to women having abortions in 1986 according to the marital status of the woman. One-fifth of married women and nearly three-fifths of unmarried women who obtained abortions had no previous live birth (table 5).

**Previous induced terminations**

For the 13-State area, about three-fifths (61 percent) of white women and almost one-half (47 percent) of black women having abortions in 1986 had no prior induced termination (table E). For those under 15 years of age, the youngest group, 91.9 percent had no previous induced abortion. Over one-half (53 percent) of black women and over one-third (39 percent) of white women had repeat abortions (table E). In each age group, a larger proportion of black than white women had experienced a prior abortion (table 6). Among black women, at least one-half of each 5-year age group aged 20-24 years and over had experienced a prior induced abortion. Among white women, the age groups 25-29 and 30-34 years had the largest percent of repeat abortions, 53 percent. Similar patterns of repeat abortions by age and race occurred in 1985.

**Period of gestation**

Almost 9 out of 10 induced terminations occurring in the 13-State area in 1986 occurred during the first trimester, as shown in table F and tables 7 and 8. Almost one-half (49 percent) were for pregnancies of 8 weeks or less duration and 40.6 percent were for pregnancies of 9-12 weeks duration. Only 10.5 percent of all abortions were obtained by women whose pregnancies had lasted more than 12 weeks, about the same proportion as that reported for 1985.

The median gestational period for black women having abortions at 9.4 weeks was slightly longer than the corresponding period for white women, 8.9 weeks. The length of the gestational period also tended to be longer for younger than for older women (figure 1). For women under 15 years of age, the median gestational period was 10.5 weeks, more than 2 weeks longer than the 8.4-week period for women aged 35-39 years. The same pattern by age prevailed for both black and white women. However, black women at every age had longer gestational periods prior to induced termination than white women.

For an 11-State area (Indiana, Kansas, Missouri, Montana, New York, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia) in 1986, data are available to examine duration of pregnancy prior to abortion by educational attainment of woman, age, and race (table 9). Generally, delayed terminations were associated with less educational attainment. For women with less than a high school education, median gestational period was 9.8 weeks, compared with 8.6 weeks for women with more than a high school education. When this analysis is restricted to women 25 years of age and over who had the opportunity to complete their schooling, the relationship is attenuated. The median duration of pregnancy prior to abortion for women with less than a high school education was 9.0 weeks, but women with more than a high school education terminated their pregnancies after 8.4 weeks. The relationship between educational attainment and gestational

Table F. Percent distribution of induced terminations of pregnancy by period of gestation and median gestational period, according to age of woman: 13-State area, 1985 and 1986

[Data include only induced terminations of pregnancy occurring in the reporting area]

Year and period of gestation <sup>1</sup>	All ages	Under 15 years	15-17 years	18-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40 years and over
1986									
	Percent distribution								
All periods of gestation . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.1	6.3	7.3	9.0	11.8	15.5	18.3	19.9	18.6
7-8 weeks . . . . .	35.8	23.3	27.1	31.9	35.5	38.4	40.7	41.6	41.4
9-12 weeks . . . . .	40.6	46.1	47.5	45.4	42.3	38.2	34.2	32.4	33.1
13 weeks or more . . . . .	10.5	24.4	18.1	13.7	10.4	7.9	6.8	6.1	6.9
	Median								
Period of gestation . . . . .	9.1	10.5	10.0	9.6	9.2	8.8	8.6	8.4	8.5
1985									
	Percent distribution								
All periods of gestation . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	12.4	6.7	6.4	8.1	11.3	15.0	18.1	19.0	17.9
7-8 weeks . . . . .	36.1	23.6	27.6	32.2	35.9	39.1	40.5	41.9	41.0
9-12 weeks . . . . .	41.1	46.1	48.3	46.7	42.5	38.1	34.6	32.6	34.2
13 weeks or more . . . . .	10.4	23.6	17.7	13.0	10.3	7.9	6.8	6.5	7.0
	Median								
Period of gestation . . . . .	9.1	10.5	10.0	9.6	9.2	8.8	8.6	8.5	8.6

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

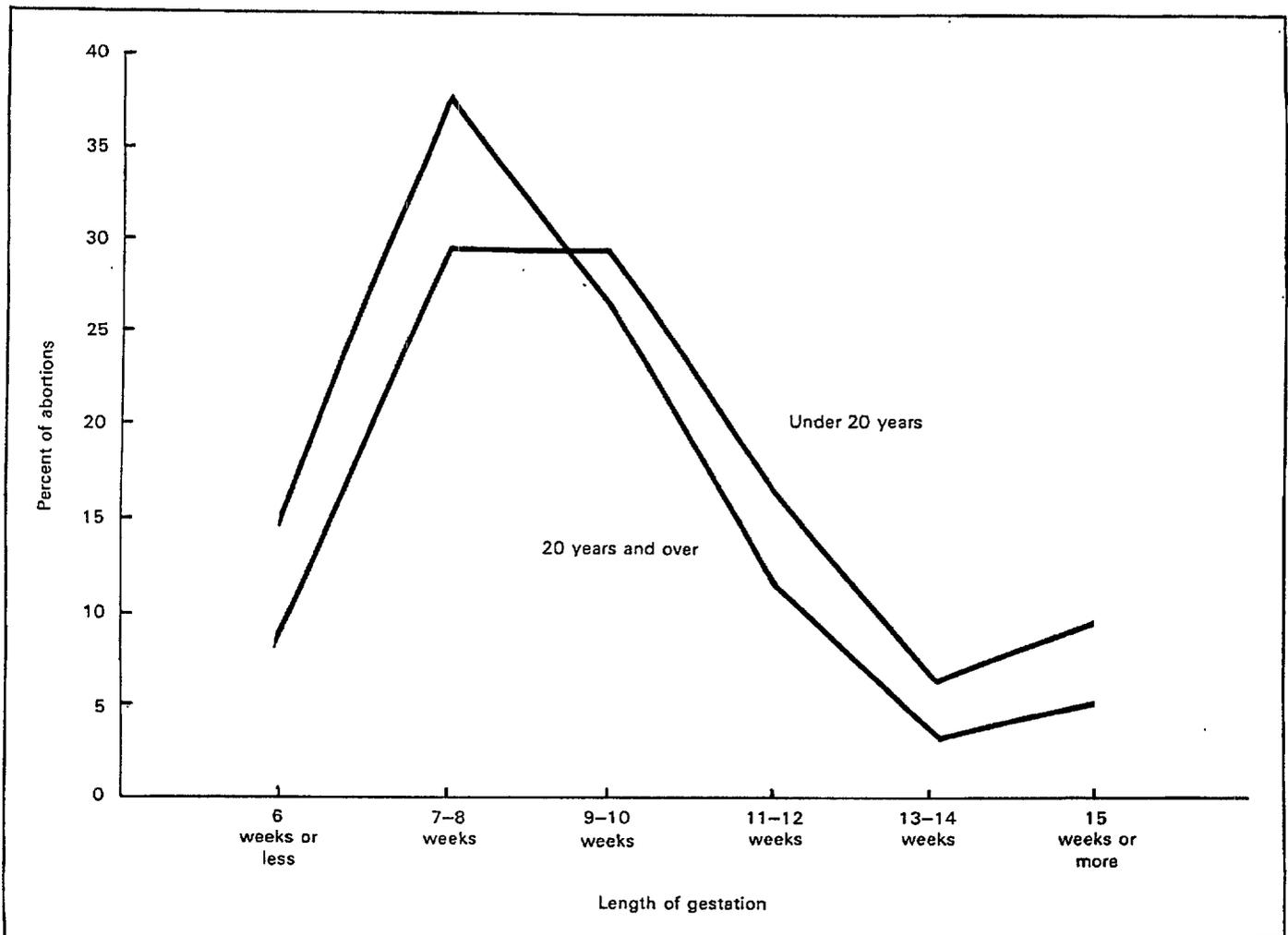


Figure 1. Percent distribution of abortions by length of pregnancy, according to woman's age: 13-State area, 1986

duration was similar for white and black women, although black women of every educational attainment level had induced abortions later in their pregnancies than white women.

## Type of procedure and reported complications

Data on types of procedures used to induce pregnancy terminations are available for the 13-State area for 1986 (tables G and 10). These figures indicate that more than 9 out of 10 inductions were performed by suction curettage (table 10). The second most frequently reported method, saline instillation, accounted for only slightly more than 1 percent of the inductions in 1986. These two methods were generally used to terminate pregnancies of different periods of gestation. Although suction curettage was the preponderant procedure for induced abortions for all

gestations, as shown in table 10, saline instillation accounted for about one-fourth of inductions at 18 weeks or more gestation.

Overall, complications were indicated on the reporting form for less than 1 percent of the induced terminations in 1986. Of the 1,342 reporting forms that indicated complications, 39.7 percent reported retained products alone or retained products in combination with other complications; 20.2 percent reported hemorrhage alone or hemorrhage in combination with other complications; and 40.1 percent reported other complications. The procedure used for 96 percent of all abortions occurring in the 13-State area, suction curettage, accounted for more than two-thirds of the reported complications (69.4 percent). Prostaglandin instillation, which was used in less than one-half of 1 percent of all abortions, accounted for 14.3 percent of the complications. The complication rate for suction curettage was very low (3.3 per 1,000 abortions) compared with the complication rate reported for prostaglandin instillation (157.8 per 1,000 abortions).

**Table G. Percent distribution of induced terminations of pregnancy by type of procedure, according to period of gestation: 13-State area, 1985 and 1986**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Type of procedure	Period of gestation							
	1986				1985			
	All periods <sup>1</sup>	Less than 13 weeks	13-15 weeks	16 weeks or more	All periods <sup>1</sup>	Less than 13 weeks	13-15 weeks	16 weeks or more
	Percent distribution							
All procedures . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Suction curettage . . . . .	96.4	98.3	91.3	67.8	96.2	98.6	89.8	57.8
Sharp curettage . . . . .	1.1	0.9	3.5	2.2	0.4	0.3	1.0	1.2
Saline instillation . . . . .	1.2	0.1	2.9	19.8	1.6	0.2	4.0	26.0
Prostaglandin instillation . . . . .	0.4	0.0	1.1	6.9	0.4	0.0	1.4	5.9
Hysterotomy . . . . .	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Hysterectomy . . . . .	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other . . . . .	0.8	0.7	1.1	3.2	1.4	0.8	3.7	9.0

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table H. Ratios of induced terminations of pregnancy, by race and metropolitan-nonmetropolitan residence, 1985 and 1986, and percent change, 1985-86: 13-State area**

[Ratios per 1,000 live births. Induced terminations of pregnancy and live births are only those occurring in the area among residents of the area]

Geographic area	1986			1985			All races <sup>1</sup>	White	Black
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black			
	Ratio								
All areas . . . . .	347.2	285.7	634.4	355.7	297.6	639.3	-2.4	-4.0	-0.8
Metropolitan areas . . . . .	403.8	330.5	698.5	415.8	346.5	707.2	-2.9	-4.6	-1.2
Nonmetropolitan areas . . . . .	165.7	159.9	224.8	168.4	164.0	215.3	-1.6	-2.5	4.4

<sup>1</sup> Includes races other than white and black.

<sup>2</sup> See Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia. Ratios are based on unrounded figures. See Technical notes.

## Residence patterns

### Metropolitan and nonmetropolitan residence

In 1986, metropolitan area residents obtained 87.0 percent of the induced terminations occurring in the 13-State area (table 11). Residents of nonmetropolitan areas having induced abortions were, on the average, younger than women in metropolitan areas having abortions. The median age at termination was 22.6 years for nonmetropolitan area women and 23.7 years for metropolitan area women.

The relative frequency of induced abortions per 1,000 live births was almost 2.5 times as high for residents of metropolitan areas as for residents of nonmetropolitan areas, 403.8 and 165.7, respectively (table H). Black women living in metropolitan areas were three times as likely to obtain abortions as black women living in nonmetropolitan areas, and the relative frequency of induced abortions among white women living in metropolitan areas was two times that of white women residing in nonmetropolitan areas. In metropolitan areas, the abortion ratio for black women, 698.5, was 2 times that for white women (330.5); among nonmetropolitan residents, abortion ratios for black women (224.8) were nearly 1½ times those for white women (159.9). The difference in abortion ratios between the major race groups was greater in metropolitan than in nonmetropolitan areas.

### Out-of-State residents

In the 13-State abortion reporting area in 1986, only 7.4 percent of induced abortions were obtained by U.S. residents outside of their State of residence (table 12). Nearly two-thirds (65 percent) were in their county of residence, and the remainder (28 percent) were within their State but outside their county of residence.

Residence status is associated with the duration of gestation prior to termination. Women obtaining abortions outside their State of residence have longer pregnancies prior to termination than women having abortions in their State of residence. The median gestational period for out-of-State residents was 9.4 weeks compared with 9.0 weeks for women obtaining abortions in their State of residence. Furthermore, 16.9 percent of out-of-State residents obtained their abortions after 12 weeks compared with 10.0 percent for State residents.

Of all the abortions (including those for nonresidents of the United States) that were reported in 1986 to NCHS, the proportion in each of the 13 reporting States accounted for by residents of that State varied from a high of 96.3 percent in Indiana to a low of 61.2 percent in Kansas (table 13). Some 36.4 percent of the abortions reported by Kansas were for Missouri residents, whereas only 2.8 percent of the abortions reported by Missouri were for Kansas residents in 1986. In Montana, 12.3 percent of abortions were obtained by nonresidents of the United States, mainly Canadians.

## References

- Centers for Disease Control. 1983. *Abortion Surveillance—Annual Summary 1979–1980*. Public Health Service. Atlanta, Ga.
- Institute of Medicine. 1975. *Legalized Abortion and the Public Health*. Washington: National Academy of Sciences.
- National Center for Health Statistics. 1978. *Model State Vital Statistics Act and Model State Vital Statistics Regulations, 1977 Revision*. DHEW Pub. No. (PHS) 78-1115. Public Health Service. Hyattsville, Md.
- National Center for Health Statistics, D. Burnham. 1981. Induced terminations of pregnancy: Reporting States, 1977 and 1978. *Monthly Vital Statistics Report*. Vol. 30, No. 6 Supp. DHHS Pub. No. (PHS) 81-1120. Public Health Service. Hyattsville, Md.
- National Center for Health Statistics, D. Burnham. 1982. Induced terminations of pregnancy: Reporting States, 1979. *Monthly Vital Statistics Report*. Vol. 31, No. 7 Supp. DHHS Pub. No. (PHS) 83-1120. Public Health Service. Hyattsville, Md.
- National Center for Health Statistics, D. Burnham. 1983a. Induced terminations of pregnancy: Reporting States, 1980. *Monthly Vital Statistics Report*. Vol. 32, No. 8 Supp. DHHS Pub. No. (PHS) 84-1120. Public Health Service. Hyattsville, Md.
- National Center for Health Statistics. 1983b. *Vital Statistics of the United States, Vol. I, Natality*. DHHS Pub. No. 87-1113. Public Health Service. Washington: U.S. Government Printing Office.
- National Center for Health Statistics. 1984. Classification and coding instructions for induced termination of pregnancy records, 1985. *Vital Statistics Instruction Manual*, Part 10. Public Health Service. Hyattsville, Md.
- National Center for Health Statistics, K. Prager. 1985a. Induced terminations of pregnancy: Reporting States, 1981. *Monthly Vital Statistics Report*. Vol. 34, No. 4 Supp. 2. DHHS Pub. No. (PHS) 85-1120. Public Health Service. Hyattsville, Md.
- National Center for Health Statistics. 1985b. Classification and coding instructions for induced termination of pregnancy records, 1986. *Vital Statistics Instruction Manual*, Part 10. Public Health Service. Hyattsville, Md.
- National Center for Health Statistics. 1985c. Vital records geographic classification, 1982. *Vital Statistics Instruction Manual*, Part 8. Public Health Service. Hyattsville, Md.
- National Center for Health Statistics, E. Powell-Griner. 1986. Induced terminations of pregnancy: Reporting States, 1982 and 1983. *Monthly Vital Statistics Report*. Vol. 35, No. 3 Supp. DHHS Pub. No. 86-1120. Public Health Service. Hyattsville, Md.
- National Center for Health Statistics, E. Powell-Griner. 1987. Induced terminations of pregnancy: Reporting States, 1984. *Monthly Vital Statistics Report*. Vol. 36, No. 5 Supp. 2. DHHS Pub. No. 87-1120. Public Health Service. Hyattsville, Md.
- Tietze, C. 1979. *Induced Abortion, 1979: A Population Council Fact Book*. New York: The Population Council, Inc.

Table 1. Number of reported induced terminations of pregnancy by race and age of woman: 13-State area, 1985 and 1986

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman	1986						1985					
	All races	White	All other				All races	White	All other			
			Total	Black	Other races	Not stated			Total	Black	Other races	Not stated
All ages . . . . .	298,719	190,125	97,140	90,700	6,440	11,454	305,938	201,245	95,897	90,002	5,895	8,796
Under 14 years. . . . .	738	260	454	444	10	24	714	288	412	407	5	14
14 years . . . . .	2,081	951	1,058	1,036	22	72	2,339	1,160	1,138	1,123	15	41
15-19 years. . . . .	70,133	46,899	20,512	19,680	832	2,722	73,567	50,890	20,682	19,918	764	1,995
15 years. . . . .	5,458	3,125	2,105	2,068	37	228	5,668	3,349	2,166	2,125	41	153
16 years. . . . .	10,372	6,595	3,343	3,248	95	434	10,264	6,845	3,144	3,069	75	275
17 years. . . . .	13,873	9,400	3,875	3,728	147	598	14,426	9,998	4,054	3,911	143	374
18 years. . . . .	19,752	13,596	5,461	5,208	253	695	21,040	15,104	5,372	5,144	228	564
19 years. . . . .	20,678	14,183	5,728	5,428	300	767	22,169	15,594	5,946	5,669	277	629
20-24 years. . . . .	100,971	65,073	32,134	30,372	1,762	3,764	104,947	70,367	31,873	30,266	1,607	2,707
25-29 years. . . . .	64,637	39,503	22,750	21,107	1,643	2,384	64,714	40,788	22,249	20,659	1,590	1,677
30-34 years. . . . .	35,831	21,994	12,486	11,242	1,244	1,351	35,259	22,173	12,123	11,052	1,071	963
35-39 years. . . . .	18,120	11,507	5,899	5,178	721	714	17,609	11,600	5,551	4,915	636	458
40 years and over. . . . .	4,505	2,994	1,334	1,163	171	177	4,728	3,198	1,401	1,216	185	129
Not stated . . . . .	1,703	944	513	478	35	246	2,061	781	468	446	22	812

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 2. Number of reported induced terminations of pregnancy by race and marital status of woman and percent distribution by age, according to race and marital status of woman: 12-State area<sup>1</sup> and New York City, 1986**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Marital status and age of woman	All other					
	All races	White	Total	Black	Other races	Not stated
	Number					
All women . . . . .	245,470	149,331	86,882	80,898	5,984	9,257
	Percent distribution					
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years. . . . .	1.0	0.7	1.6	1.6	0.5	0.9
15-17 years. . . . .	9.9	10.0	9.5	9.9	4.3	11.3
18-19 years. . . . .	13.2	14.3	11.3	11.5	8.5	13.2
20-24 years. . . . .	33.6	34.0	32.9	33.3	27.8	33.6
25-29 years. . . . .	22.2	21.3	23.8	23.6	25.6	21.5
30-34 years. . . . .	12.4	12.0	13.2	12.8	19.5	12.1
35-39 years. . . . .	6.2	6.2	6.3	5.9	11.0	6.1
40 years and over . . . . .	1.5	1.6	1.4	1.3	2.7	1.3
	Number					
Married women . . . . .	50,309	32,344	16,384	13,482	2,902	1,581
	Percent distribution					
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years. . . . .	0.1	0.1	0.2	0.2	0.1	0.1
15-17 years. . . . .	0.9	1.0	0.5	0.6	0.4	1.3
18-19 years. . . . .	3.8	4.5	2.4	2.3	2.9	2.9
20-24 years. . . . .	26.9	28.3	24.2	25.1	20.1	26.9
25-29 years. . . . .	30.1	29.2	32.1	32.6	29.6	28.7
30-34 years. . . . .	21.6	20.6	23.5	22.9	26.6	23.3
35-39 years. . . . .	12.8	12.5	13.4	12.8	15.8	13.6
40 years and over . . . . .	3.7	3.8	3.6	3.4	4.3	3.2
	Number					
Unmarried women. . . . .	184,589	111,839	67,311	64,427	2,884	5,439
	Percent distribution					
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years. . . . .	1.3	0.9	1.9	2.0	0.9	1.1
15-17 years. . . . .	12.4	12.6	11.8	12.0	8.2	14.6
18-19 years. . . . .	15.8	17.1	13.5	13.4	14.1	16.6
20-24 years. . . . .	35.4	35.7	35.1	35.1	35.6	35.1
25-29 years. . . . .	20.0	19.1	21.7	21.7	21.6	18.9
30-34 years. . . . .	9.8	9.4	10.7	10.6	12.1	8.9
35-39 years. . . . .	4.4	4.4	4.5	4.4	6.2	4.1
40 years and over . . . . .	0.9	0.9	0.9	0.9	1.1	0.8
	Number					
Not stated . . . . .	10,572	5,148	3,187	2,989	198	2,237
	Percent distribution					
All ages . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
Under 15 years. . . . .	0.8	0.6	0.9	0.9	0.5	1.0
15-17 years. . . . .	8.2	7.9	7.4	7.5	5.1	10.3
18-19 years. . . . .	12.8	14.2	10.8	11.0	8.7	12.3
20-24 years. . . . .	33.0	32.9	32.1	32.4	27.6	34.7
25-29 years. . . . .	22.9	21.5	25.2	25.2	25.5	22.8
30-34 years. . . . .	13.7	13.8	14.6	14.1	21.4	11.9
35-39 years. . . . .	7.0	7.3	7.4	7.3	8.7	5.8
40 years and over . . . . .	1.7	1.9	1.7	1.6	2.6	1.2

<sup>1</sup>The 12-State area includes Colorado, Indiana, Kansas, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 3. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by educational attainment, according to race and age of woman: 11-State area, 1986**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and years of school completed	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All ages . . . . .	277,085	175,162	95,198	89,399	5,799	6,725
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	2.5	2.3	2.9	2.7	6.8	5.0
9-11 years . . . . .	18.1	17.2	19.2	19.7	12.8	27.8
12 years . . . . .	47.2	45.8	49.7	50.2	42.3	43.6
13-15 years . . . . .	21.4	22.1	20.3	20.4	19.8	15.5
16 years or more . . . . .	10.8	12.5	7.8	7.1	18.3	8.0
Number						
Under 15 years . . . . .	2,675	1,124	1,492	1,461	31	59
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	64.6	60.7	67.3	67.2	70.4	74.2
9-11 years . . . . .	35.4	39.3	32.7	32.8	29.6	25.8
12 years . . . . .	-	-	-	-	-	-
13-15 years . . . . .	-	-	-	-	-	-
16 years or more . . . . .	-	-	-	-	-	-
Number						
15-17 years . . . . .	27,476	17,602	9,135	8,908	227	739
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	5.1	4.4	6.3	6.3	9.7	6.5
9-11 years . . . . .	75.1	75.4	74.5	74.5	72.2	78.3
12 years . . . . .	19.1	19.6	18.6	18.6	16.2	14.4
13-15 years . . . . .	0.7	0.7	0.6	0.6	1.9	0.8
16 years or more . . . . .	-	-	-	-	-	-
Number						
18-19 years . . . . .	37,315	25,552	10,957	10,473	484	806
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	1.0	1.0	0.9	0.8	2.8	2.3
9-11 years . . . . .	18.4	16.5	22.3	22.5	18.9	29.8
12 years . . . . .	60.2	60.4	59.9	60.3	52.4	53.9
13-15 years . . . . .	20.0	21.7	16.6	16.2	25.0	13.7
16 years or more . . . . .	0.4	0.4	0.3	0.3	0.9	0.3
Number						
20-24 years . . . . .	93,602	59,924	31,513	29,951	1,562	2,165
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	1.2	1.3	1.0	0.8	4.6	3.0
9-11 years . . . . .	12.0	10.9	13.6	13.8	10.6	24.6
12 years . . . . .	49.9	47.6	54.3	55.0	42.3	45.5
13-15 years . . . . .	27.6	29.1	25.2	25.0	28.8	20.8
16 years or more . . . . .	9.2	11.1	5.9	5.5	13.8	6.0
Number						
25-29 years . . . . .	60,054	36,419	22,275	20,769	1,506	1,360
Percent distribution						
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	1.6	1.7	1.3	1.0	6.3	4.0
9-11 years . . . . .	9.8	9.1	10.5	10.6	9.4	17.4
12 years . . . . .	49.4	47.6	52.3	52.9	44.2	49.6
13-15 years . . . . .	23.0	22.5	24.1	24.6	17.6	17.3
16 years or more . . . . .	16.2	19.0	11.7	11.0	22.5	11.7

See note at end of table.

**Table 3. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by educational attainment, according to race and age of woman: 11-State area, 1986—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and years of school completed	All races	White	All other			Not stated
			Total	Black	Other races	
30-34 years . . . . .	33,253	20,248	12,219	11,080	1,139	786
			Number			
			Percent distribution			
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	2.3	2.3	2.2	1.6	7.9	6.1
9-11 years . . . . .	8.1	7.0	9.6	9.6	9.4	16.0
12 years . . . . .	47.3	44.9	51.5	52.5	40.7	43.2
13-15 years . . . . .	22.5	22.9	22.1	22.5	17.7	15.2
16 years or more . . . . .	19.8	22.9	14.8	13.8	24.3	19.4
35-39 years . . . . .	16,839	10,601	5,791	5,131	660	447
			Number			
			Percent distribution			
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	3.1	2.9	3.2	2.6	8.2	8.5
9-11 years . . . . .	7.2	6.1	9.0	9.2	7.3	14.0
12 years . . . . .	46.8	43.8	52.0	52.8	45.1	49.5
13-15 years . . . . .	20.6	20.8	20.5	21.5	11.5	12.5
16 years or more . . . . .	22.3	26.4	15.4	13.8	28.0	15.5
40 years and over . . . . .	4,233	2,798	1,309	1,151	158	126
			Number			
			Percent distribution			
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	4.8	4.1	6.1	4.8	16.9	7.5
9-11 years . . . . .	8.4	7.2	10.7	10.7	10.3	11.3
12 years . . . . .	49.4	47.4	53.1	55.2	36.0	60.4
13-15 years . . . . .	16.3	16.6	16.1	16.6	11.8	7.5
16 years or more . . . . .	21.1	24.7	14.0	12.7	25.0	13.2
Not stated . . . . .	1,638	894	507	475	32	237
			Number			
			Percent distribution			
All years of school completed . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
0-8 years . . . . .	2.0	1.6	2.3	1.8	9.7	5.5
9-11 years . . . . .	18.4	16.0	21.6	23.1	-	25.5
12 years . . . . .	50.0	49.5	51.7	51.7	51.6	43.6
13-15 years . . . . .	15.9	17.0	13.1	13.1	12.9	25.5
16 years or more . . . . .	13.7	16.0	11.4	10.4	25.8	-

NOTE: The 11-State area includes Indiana, Kansas, Missouri, Montana, New York, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia

**Table 4. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by number of previous live births, according to race and age of woman: 13-State area, 1986**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and number of previous live births	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All ages . . . . .	298,719	190,125	97,140	90,700	6,440	11,454
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	52.0	59.4	37.5	37.0	45.1	53.2
1 previous live birth . . . . .	23.3	19.8	30.1	30.8	20.0	21.7
2 previous live births . . . . .	15.9	13.9	19.7	19.5	21.5	16.2
3 previous live births . . . . .	5.8	4.7	7.9	7.9	8.1	5.5
4 previous live births . . . . .	1.9	1.4	3.0	3.0	3.0	2.1
5 previous live births . . . . .	0.7	0.4	1.1	1.1	1.1	0.9
6 previous live births . . . . .	0.2	0.2	0.4	0.4	0.5	0.2
7 previous live births or more . . . . .	0.2	0.1	0.3	0.3	0.7	0.2
Number						
Under 15 years . . . . .	2,819	1,211	1,512	1,480	32	96
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	96.5	96.7	96.3	96.4	93.5	97.4
1 previous live birth . . . . .	2.1	1.6	2.6	2.6	3.2	1.3
2 previous live births . . . . .	0.7	1.0	0.5	0.4	3.2	-
3 previous live births . . . . .	0.5	0.5	0.5	0.5	-	1.3
4 previous live births . . . . .	0.1	0.3	0.1	0.1	-	-
5 previous live births . . . . .	-	-	-	-	-	-
6 previous live births . . . . .	-	-	-	-	-	-
7 previous live births or more . . . . .	-	-	-	-	-	-
Number						
15-17 years . . . . .	29,703	19,120	9,323	9,044	279	1,260
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	92.2	94.8	87.0	86.9	88.9	93.0
1 previous live birth . . . . .	7.0	4.7	11.8	11.9	9.2	6.2
2 previous live births . . . . .	0.6	0.4	1.1	1.0	1.9	0.7
3 previous live births . . . . .	0.1	0.0	0.1	0.1	-	0.2
4 previous live births . . . . .	0.0	0.0	0.1	0.1	-	-
5 previous live births . . . . .	0.0	-	0.0	0.0	-	-
6 previous live births . . . . .	0.0	0.0	0.0	0.0	-	-
7 previous live births or more . . . . .	-	-	-	-	-	-
Number						
18-19 years . . . . .	40,430	27,779	11,189	10,636	553	1,462
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	79.6	85.6	65.0	63.9	86.3	80.0
1 previous live birth . . . . .	16.5	11.9	27.7	28.6	10.5	16.2
2 previous live births . . . . .	3.3	2.2	6.2	6.3	2.9	3.2
3 previous live births . . . . .	0.5	0.3	1.0	1.0	0.4	0.5
4 previous live births . . . . .	0.1	0.0	0.1	0.1	-	0.1
5 previous live births . . . . .	0.0	0.0	0.0	0.0	-	-
6 previous live births . . . . .	0.0	0.0	-	-	-	-
7 previous live births or more . . . . .	0.0	0.0	0.0	0.0	-	-
Number						
20-24 years . . . . .	100,971	65,073	32,134	30,372	1,762	3,764
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	56.3	65.4	38.1	36.5	65.0	56.4
1 previous live birth . . . . .	27.2	21.9	37.9	38.9	20.2	26.2
2 previous live births . . . . .	12.6	10.0	17.8	18.1	11.4	13.2
3 previous live births . . . . .	3.0	2.2	4.6	4.8	2.5	3.0
4 previous live births . . . . .	0.7	0.4	1.2	1.2	0.8	0.6
5 previous live births . . . . .	0.1	0.1	0.3	0.3	-	0.4
6 previous live births . . . . .	0.0	0.0	0.1	0.1	0.1	0.0
7 previous live births or more . . . . .	0.0	0.0	0.1	0.1	-	0.0

See note at end of table.

**Table 4. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by number of previous live births, according to race and age of woman: 13-State area, 1986—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and number of previous live births	All other					
	All races	White	Total	Black	Other races	Not stated
Number						
25-29 years . . . . .	64,637	39,503	22,750	21,107	1,643	2,384
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	36.2	44.1	22.5	21.2	40.4	38.9
1 previous live birth . . . . .	28.9	26.1	33.8	34.4	25.9	25.9
2 previous live births . . . . .	23.2	20.6	27.5	27.8	23.7	23.9
3 previous live births . . . . .	8.2	6.7	10.7	10.9	7.2	8.0
4 previous live births . . . . .	2.5	1.9	3.6	3.7	1.7	2.2
5 previous live births . . . . .	0.7	0.5	1.2	1.3	0.7	0.8
6 previous live births . . . . .	0.2	0.2	0.4	0.4	0.2	0.3
7 previous live births or more . . . . .	0.1	0.1	0.2	0.2	0.1	-
Number						
30-34 years . . . . .	35,831	21,994	12,486	11,242	1,244	1,351
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	24.9	31.4	13.5	12.8	20.0	28.0
1 previous live birth . . . . .	25.7	24.9	27.4	27.9	22.5	24.2
2 previous live births . . . . .	29.1	27.8	31.4	31.2	34.1	28.4
3 previous live births . . . . .	13.1	11.1	16.6	16.9	13.4	12.2
4 previous live births . . . . .	4.6	3.2	7.0	7.1	6.2	4.7
5 previous live births . . . . .	1.6	1.0	2.6	2.6	2.2	1.8
6 previous live births . . . . .	0.5	0.3	0.9	0.9	1.1	0.2
7 previous live births or more . . . . .	0.4	0.3	0.7	0.7	0.5	0.6
Number						
35-39 years . . . . .	18,120	11,507	5,899	5,178	721	714
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	17.1	21.5	8.6	8.2	10.8	17.0
1 previous live birth . . . . .	22.4	22.4	22.6	23.5	16.1	20.4
2 previous live births . . . . .	32.2	32.8	31.1	29.9	39.5	32.1
3 previous live births . . . . .	16.5	14.8	19.9	19.8	20.5	15.7
4 previous live births . . . . .	6.9	5.3	9.6	10.0	6.7	9.9
5 previous live births . . . . .	2.9	2.0	4.6	4.9	2.7	3.4
6 previous live births . . . . .	1.2	0.8	2.0	2.1	1.3	0.8
7 previous live births or more . . . . .	0.9	0.5	1.7	1.5	2.6	0.6
Number						
40 years and over . . . . .	4,505	2,994	1,334	1,163	171	177
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	11.3	13.6	6.0	5.7	8.3	12.0
1 previous live birth . . . . .	16.5	17.4	14.9	15.3	12.4	13.3
2 previous live births . . . . .	32.5	34.4	28.4	28.6	26.6	32.0
3 previous live births . . . . .	19.3	18.9	20.7	20.6	21.3	14.7
4 previous live births . . . . .	10.0	8.7	12.5	12.4	13.0	13.3
5 previous live births . . . . .	5.6	4.2	8.4	8.6	6.5	8.7
6 previous live births . . . . .	2.3	1.4	4.0	4.2	3.0	4.0
7 previous live births or more . . . . .	2.5	1.4	5.2	4.6	8.9	2.0
Number						
Not stated . . . . .	1,703	944	513	478	35	246
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous live birth . . . . .	46.5	53.6	35.3	33.8	56.2	38.5
1 previous live birth . . . . .	25.6	23.9	28.7	29.9	12.5	25.3
2 previous live births . . . . .	17.1	14.2	20.9	21.0	18.7	24.2
3 previous live births . . . . .	6.7	5.7	8.9	9.1	6.2	4.4
4 previous live births . . . . .	2.6	1.7	3.5	3.8	-	6.6
5 previous live births . . . . .	1.3	0.8	2.3	2.0	6.2	1.1
6 previous live births . . . . .	0.1	-	0.2	0.2	-	-
7 previous live births or more . . . . .	0.1	-	0.2	0.2	-	-

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 5. Number of reported induced terminations of pregnancy by marital status and age of woman and percent distribution by number of previous live births, according to marital status and age of woman: 12-State area<sup>1</sup> and New York City, 1986

[Data include only induced terminations of pregnancy occurring in the reporting area]

<i>Age of woman and number of previous live births</i>	<i>All women</i>	<i>Married</i>	<i>Unmarried</i>	<i>Not stated</i>
		Number		
All ages . . . . .	245,470	50,309	184,589	10,572
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	50.4	19.5	59.8	25.6
1 previous live birth . . . . .	24.2	29.8	22.3	32.4
2 previous live births . . . . .	16.4	32.1	11.7	25.7
3 previous live births . . . . .	5.9	12.2	4.1	10.0
4 previous live births . . . . .	2.0	4.0	1.4	3.9
5 previous live births . . . . .	0.7	1.4	0.5	1.7
6 previous live births . . . . .	0.2	0.5	0.2	0.5
7 previous live births or more . . . . .	0.2	0.4	0.1	0.4
		Number		
Under 15 years . . . . .	2,465	74	2,312	79
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	96.3	39.7	98.1	93.5
1 previous live birth . . . . .	2.2	20.6	1.6	3.2
2 previous live births . . . . .	0.8	17.6	0.3	-
3 previous live births . . . . .	0.5	16.2	0.0	3.2
4 previous live births . . . . .	0.2	5.9	-	-
5 previous live births . . . . .	-	-	-	-
6 previous live births . . . . .	-	-	-	-
7 previous live births or more . . . . .	-	-	-	-
		Number		
15-17 years . . . . .	24,071	429	22,798	844
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	92.0	57.9	92.9	77.9
1 previous live birth . . . . .	7.2	35.5	6.5	17.9
2 previous live births . . . . .	0.6	5.6	0.5	3.2
3 previous live births . . . . .	0.1	0.5	0.0	0.2
4 previous live births . . . . .	0.0	0.5	0.0	0.5
5 previous live births . . . . .	0.0	-	0.0	-
6 previous live births . . . . .	0.0	-	0.0	0.2
7 previous live births or more . . . . .	-	-	-	-
		Number		
18-19 years . . . . .	32,191	1,890	28,987	1,314
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	78.7	42.6	81.6	54.6
1 previous live birth . . . . .	17.4	43.1	15.2	35.5
2 previous live births . . . . .	3.4	12.4	2.7	7.1
3 previous live births . . . . .	0.5	1.5	0.3	2.2
4 previous live births . . . . .	0.1	0.2	0.0	0.7
5 previous live births . . . . .	0.0	0.1	0.0	-
6 previous live births . . . . .	0.0	-	0.0	-
7 previous live births or more . . . . .	0.0	0.1	0.0	-
		Number		
20-24 years . . . . .	82,090	13,492	65,206	3,392
		Percent distribution		
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	54.1	26.5	60.8	28.1
1 previous live birth . . . . .	28.7	39.5	26.0	41.3
2 previous live births . . . . .	13.1	26.4	10.0	23.0
3 previous live births . . . . .	3.1	6.0	2.5	5.4
4 previous live births . . . . .	0.7	1.3	0.6	1.4
5 previous live births . . . . .	0.1	0.3	0.1	0.5
6 previous live births . . . . .	0.0	0.1	0.0	0.1
7 previous live births or more . . . . .	0.0	0.1	0.0	0.1

See footnote at end of table.

**Table 5. Number of reported induced terminations of pregnancy by marital status and age of woman and percent distribution by number of previous live births, according to marital status and age of woman: 12-State area<sup>1</sup> and New York City, 1986—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

<i>Age of woman and number of previous live births</i>	<i>All women</i>	<i>Married</i>	<i>Unmarried</i>	<i>Not stated</i>
Number				
25-29 years . . . . .	54,260	15,102	36,802	2,356
Percent distribution				
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	34.8	19.3	42.2	15.0
1 previous live birth . . . . .	29.6	30.6	29.1	33.3
2 previous live births . . . . .	23.7	33.9	19.1	32.3
3 previous live births . . . . .	8.3	11.6	6.7	12.5
4 previous live births . . . . .	2.5	3.4	2.1	4.3
5 previous live births . . . . .	0.7	0.9	0.6	2.0
6 previous live births . . . . .	0.2	0.3	0.2	0.5
7 previous live births or more . . . . .	0.1	0.1	0.1	0.1
Number				
30-34 years . . . . .	30,362	10,841	18,117	1,404
Percent distribution				
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	24.3	13.6	31.5	11.1
1 previous live birth . . . . .	26.1	23.2	27.9	25.1
2 previous live births . . . . .	29.2	37.3	23.9	35.4
3 previous live births . . . . .	13.2	17.2	10.5	17.2
4 previous live births . . . . .	4.7	5.5	4.0	7.2
5 previous live births . . . . .	1.6	2.0	1.4	2.4
6 previous live births . . . . .	0.5	0.7	0.4	0.8
7 previous live births or more . . . . .	0.4	0.5	0.4	0.8
Number				
35-39 years . . . . .	15,208	6,417	8,070	721
Percent distribution				
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	16.5	9.1	23.2	6.7
1 previous live birth . . . . .	22.7	19.2	25.6	20.6
2 previous live births . . . . .	32.1	38.2	27.0	35.6
3 previous live births . . . . .	16.5	19.8	13.8	19.4
4 previous live births . . . . .	6.9	8.1	5.8	9.5
5 previous live births . . . . .	3.0	3.2	2.8	5.0
6 previous live births . . . . .	1.2	1.3	1.0	1.9
7 previous live births or more . . . . .	0.9	1.1	0.8	1.2
Number				
40 years and over . . . . .	3,690	1,867	1,650	173
Percent distribution				
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	10.8	7.3	15.3	6.5
1 previous live birth . . . . .	16.4	14.3	18.9	15.6
2 previous live births . . . . .	32.1	35.8	28.1	29.9
3 previous live births . . . . .	19.4	21.2	17.4	18.2
4 previous live births . . . . .	10.2	10.5	9.6	12.3
5 previous live births . . . . .	5.8	5.8	5.4	9.7
6 previous live births . . . . .	2.5	2.1	2.9	4.5
7 previous live births or more . . . . .	2.8	3.0	2.5	3.2
Number				
Not stated . . . . .	1,133	197	647	289
Percent distribution				
Total . . . . .	100.0	100.0	100.0	100.0
No previous live birth . . . . .	41.3	16.7	50.6	34.9
1 previous live birth . . . . .	27.9	31.2	25.4	34.2
2 previous live births . . . . .	18.9	31.2	15.4	17.1
3 previous live births . . . . .	6.9	12.5	4.6	9.6
4 previous live births . . . . .	3.4	5.7	2.8	2.7
5 previous live births . . . . .	1.4	1.6	1.3	1.4
6 previous live births . . . . .	0.1	0.5	-	-
7 previous live births or more . . . . .	0.1	0.5	-	-

<sup>1</sup>The 12-State area includes Colorado, Indiana, Kansas, Missouri, Montana, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 6. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by number of previous induced terminations, according to race and age of woman: 13-State area, 1986**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and number of previous induced terminations	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
All ages . . . . .	298,719	190,125	97,140	90,700	6,440	11,454
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	56.3	60.6	47.9	47.2	57.7	55.9
1 previous induced termination . . . . .	26.9	25.5	29.6	29.9	26.2	27.5
2 previous induced terminations . . . . .	10.5	8.9	13.6	13.9	10.0	10.7
3 previous induced terminations or more . . . . .	6.3	5.0	8.8	9.0	6.1	5.9
Number						
Under 15 years . . . . .	2,819	1,211	1,512	1,480	32	96
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	91.9	92.7	91.3	91.3	90.3	93.2
1 previous induced termination . . . . .	6.8	6.0	7.6	7.6	6.5	4.1
2 previous induced terminations . . . . .	0.7	0.6	0.7	0.6	3.2	2.7
3 previous induced terminations or more . . . . .	0.5	0.7	0.4	0.4	-	-
Number						
15-17 years . . . . .	29,703	19,120	9,323	9,044	279	1,260
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	84.9	87.6	79.4	79.2	84.9	84.4
1 previous induced termination . . . . .	13.1	11.0	17.5	17.7	12.5	13.0
2 previous induced terminations . . . . .	1.7	1.3	2.6	2.6	2.3	2.4
3 previous induced terminations or more . . . . .	0.3	0.2	0.5	0.5	0.4	0.2
Number						
18-19 years . . . . .	40,430	27,779	11,189	10,636	553	1,462
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	73.2	76.7	64.5	64.0	75.2	73.7
1 previous induced termination . . . . .	21.4	19.2	26.8	27.2	18.4	21.7
2 previous induced terminations . . . . .	4.3	3.3	6.9	7.0	4.9	3.6
3 previous induced terminations or more . . . . .	1.1	0.8	1.8	1.8	1.5	0.9
Number						
20-24 years . . . . .	100,971	65,073	32,134	30,372	1,762	3,764
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	55.4	59.8	46.8	45.9	62.0	54.2
1 previous induced termination . . . . .	29.4	27.9	32.5	32.8	27.3	29.8
2 previous induced terminations . . . . .	10.4	8.7	13.8	14.2	7.8	11.2
3 previous induced terminations or more . . . . .	4.7	3.6	7.0	7.2	2.9	4.8
Number						
25-29 years . . . . .	64,637	39,503	22,750	21,107	1,643	2,384
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	43.4	47.2	37.0	35.5	55.8	42.1
1 previous induced termination . . . . .	31.4	30.9	31.9	32.3	26.5	33.7
2 previous induced terminations . . . . .	14.8	13.2	17.5	18.0	10.7	14.8
3 previous induced terminations or more . . . . .	10.4	8.6	13.7	14.2	7.0	9.4

See note at end of table.

**Table 6. Number of reported induced terminations of pregnancy by race and age of woman and percent distribution by number of previous induced terminations, according to race and age of woman: 13-State area, 1986—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Age of woman and number of previous induced terminations	All races	White	All other			Not stated
			Total	Black	Other races	
Number						
30-34 years . . . . .	35,831	21,994	12,486	11,242	1,244	1,351
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	42.4	46.7	34.8	33.4	47.4	43.1
1 previous induced termination . . . . .	30.4	29.6	31.8	32.2	28.2	29.6
2 previous induced terminations . . . . .	15.8	14.0	18.9	19.3	14.9	16.4
3 previous induced terminations or more . . . . .	11.5	9.7	14.6	15.2	9.5	11.0
Number						
35-39 years . . . . .	18,120	11,507	5,899	5,178	721	714
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	46.5	52.3	35.3	33.8	46.4	46.5
1 previous induced termination . . . . .	28.7	27.4	31.1	31.3	29.7	29.7
2 previous induced terminations . . . . .	14.0	11.7	18.5	19.3	12.7	12.7
3 previous induced terminations or more . . . . .	10.8	8.6	15.1	15.6	11.1	11.1
Number						
40 years and over . . . . .	4,505	2,994	1,334	1,163	171	177
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	51.6	58.2	36.6	35.5	44.2	53.1
1 previous induced termination . . . . .	27.0	25.0	31.9	31.5	34.4	25.2
2 previous induced terminations . . . . .	11.7	9.1	17.4	18.3	11.0	11.2
3 previous induced terminations or more . . . . .	9.7	7.7	14.2	14.7	10.4	10.5
Number						
Not stated . . . . .	1,703	944	513	478	35	246
Percent distribution						
Total . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
No previous induced termination . . . . .	51.4	56.3	42.7	40.6	71.9	48.9
1 previous induced termination . . . . .	25.5	24.0	27.6	28.4	15.6	29.5
2 previous induced terminations . . . . .	14.4	11.9	19.2	20.0	9.4	13.6
3 previous induced terminations or more . . . . .	8.7	7.7	10.5	11.0	3.1	8.0

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 7. Number of reported induced terminations of pregnancy by race of woman and percent distribution by period of gestation, according to race of woman: 13-State area, 1986

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All races	White	All other			Not stated
			Total	Black	Other races	
			Number			
Total . . . . .	298,719	190,125	97,140	90,700	6,440	11,454
			Percent distribution			
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.1	13.7	12.4	12.0	18.0	9.7
7 weeks . . . . .	16.9	18.0	15.2	14.8	20.1	12.1
8 weeks . . . . .	18.9	19.5	17.6	17.4	20.6	21.3
9 weeks . . . . .	15.1	15.4	14.6	14.7	13.8	14.1
10 weeks . . . . .	12.0	12.0	12.3	12.5	9.4	11.1
11 weeks . . . . .	8.6	8.4	9.2	9.4	7.0	7.7
12 weeks . . . . .	4.8	4.5	5.6	5.7	4.2	4.7
13 weeks . . . . .	2.8	2.5	3.2	3.3	2.0	5.1
14 weeks . . . . .	1.7	1.4	2.0	2.1	1.1	2.5
15 weeks . . . . .	1.2	1.0	1.5	1.6	0.9	2.0
16 weeks . . . . .	1.0	0.8	1.2	1.3	0.6	1.6
17 weeks . . . . .	0.9	0.6	1.1	1.1	0.5	3.6
18 weeks . . . . .	0.7	0.6	0.9	1.0	0.4	1.1
19 weeks . . . . .	0.6	0.4	0.7	0.8	0.3	0.8
20 weeks . . . . .	0.6	0.4	0.8	0.8	0.5	1.0
21 weeks or more . . . . .	1.2	0.9	1.7	1.7	0.5	1.8

<sup>1</sup> Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 8. Number of reported induced terminations of pregnancy by age of woman and percent distribution by period of gestation, according to age of woman: 13-State area, 1985 and 1986**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All Ages	15-19 years												40 years and over	Not stated
		Under 14 years	14 years	Total	15 years	16 years	17 years	18 years	19 years	20-24 years	25-29 years	30-34 years	35-39 years		
1986															
Total	298,719	738	2,081	70,133	5,458	10,372	13,873	19,752	20,678	100,971	64,637	35,831	18,120	4,505	1,703
Percent distribution															
All periods of gestation	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less	13.1	6.2	6.3	8.3	7.1	7.0	7.7	8.2	9.7	11.8	15.5	18.3	19.9	18.6	14.1
7 weeks	16.9	9.0	8.6	12.9	9.6	10.9	12.0	13.5	14.8	16.4	18.6	20.4	21.4	21.2	18.7
8 weeks	18.9	15.1	14.4	17.0	14.6	15.8	16.5	17.5	18.0	19.1	19.8	20.4	20.2	20.2	19.2
9 weeks	15.1	12.9	13.2	15.7	14.9	15.5	16.3	15.4	15.9	15.5	14.9	14.0	14.2	14.8	14.3
10 weeks	12.0	15.1	14.8	13.8	13.7	14.2	13.7	13.9	13.6	12.6	11.3	10.0	9.3	9.6	10.9
11 weeks	8.6	9.8	11.5	10.5	11.3	11.2	10.8	10.6	9.8	9.1	7.8	6.6	5.8	5.9	6.9
12 weeks	4.8	7.2	6.9	6.3	7.4	7.0	6.5	6.3	5.6	5.1	4.2	3.5	3.1	2.9	3.8
13 weeks	2.8	4.6	5.3	4.0	4.6	4.6	4.1	3.9	3.5	2.9	2.2	2.0	1.6	1.7	3.2
14 weeks	1.7	3.7	3.9	2.4	2.8	2.6	2.5	2.3	2.1	1.7	1.4	1.1	1.0	0.8	1.6
15 weeks	1.2	2.4	2.5	1.8	2.6	2.2	1.8	1.7	1.5	1.2	0.9	0.9	0.7	0.8	1.8
16 weeks	1.0	2.4	2.2	1.4	1.8	1.6	1.5	1.4	1.0	1.0	0.7	0.7	0.5	0.6	0.8
17 weeks	0.9	3.0	2.1	1.3	1.8	1.7	1.3	1.2	1.0	0.9	0.7	0.5	0.5	0.5	1.3
18 weeks	0.7	1.5	2.1	1.0	1.8	1.1	1.2	0.9	0.8	0.7	0.6	0.3	0.4	0.5	0.8
19 weeks	0.6	1.9	1.6	0.8	1.1	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.3	0.7	0.9
20 weeks	0.6	1.4	1.3	0.9	1.2	1.2	1.0	0.8	0.8	0.5	0.4	0.4	0.3	0.3	0.5
21 weeks or more	1.2	3.8	3.2	2.0	3.5	2.5	2.3	1.7	1.5	1.1	0.8	0.7	0.8	0.9	1.2
1985															
Total	305,938	714	2,339	73,567	5,668	10,264	14,426	21,040	22,169	104,947	64,714	35,259	17,609	4,728	2,061
Percent distribution															
All periods of gestation	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less	12.4	6.6	6.8	7.4	5.9	6.3	6.7	7.6	8.6	11.3	15.0	18.1	19.0	17.9	12.2
7 weeks	16.8	9.1	9.7	12.9	10.6	11.0	11.9	13.4	14.5	16.5	18.9	20.3	20.9	20.4	17.4
8 weeks	19.2	14.3	13.9	17.4	16.1	15.8	16.6	18.3	18.1	19.4	20.1	20.2	20.9	20.6	19.6
9 weeks	15.4	12.8	13.6	15.9	14.9	14.7	16.2	16.2	16.2	15.9	15.2	14.4	14.0	14.9	14.8
10 weeks	12.2	12.8	13.4	13.9	13.6	14.7	14.2	13.9	13.5	12.6	11.2	10.3	9.5	10.1	9.7
11 weeks	8.7	11.9	11.7	11.0	10.6	11.6	11.5	10.8	10.6	9.1	7.5	6.4	6.1	5.7	7.3
12 weeks	4.9	7.6	7.8	6.6	7.5	7.4	7.0	6.2	6.0	4.9	4.2	3.5	3.0	3.5	4.4
13 weeks	2.7	3.2	4.7	3.7	4.2	4.3	4.0	3.5	3.4	2.8	2.2	1.8	1.6	1.8	3.4
14 weeks	1.7	3.5	3.5	2.4	3.2	2.8	2.6	2.0	2.1	1.7	1.4	1.2	1.1	0.7	2.6
15 weeks	1.2	2.1	2.4	1.6	2.2	2.1	1.6	1.5	1.3	1.2	0.9	0.9	0.8	0.7	2.0
16 weeks	1.0	3.1	2.1	1.5	2.1	1.7	1.7	1.3	1.2	1.0	0.8	0.6	0.5	0.7	1.1
17 weeks	0.8	1.1	1.8	1.3	1.5	1.6	1.4	1.1	1.1	0.8	0.6	0.6	0.5	0.3	1.2
18 weeks	0.7	2.4	2.0	1.1	1.8	1.4	1.2	1.1	0.8	0.7	0.5	0.5	0.4	0.6	1.2
19 weeks	0.6	3.1	1.2	0.8	1.3	1.1	0.8	0.8	0.6	0.5	0.4	0.4	0.5	0.6	0.7
20 weeks	0.5	2.2	1.1	0.7	1.2	1.0	0.7	0.6	0.6	0.5	0.3	0.3	0.3	0.6	0.9
21 weeks or more	1.2	4.1	4.4	1.8	3.3	2.5	2.0	1.6	1.3	1.0	0.8	0.7	0.7	1.0	1.4

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 9. Number of reported induced terminations of pregnancy by educational attainment, race, and age of woman and percent distribution by period of gestation according to educational attainment, race, and age of woman: 11-State area, 1986

[Data include only induced terminations of pregnancy occurring in the reporting area]

Race and age of woman and period of gestation <sup>1</sup>	Years of school completed						
	Total	0-8 years	9-11 years	12 years	13-15 years	16 years or more	Not stated
All races <sup>2</sup>		Number					
All ages . . . . .	277,085	6,550	46,888	122,405	55,549	28,001	17,692
		Percent distribution					
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.7	11.5	9.4	13.0	15.2	20.5	15.7
7-8 weeks . . . . .	35.6	30.8	28.3	35.2	39.1	43.4	36.0
9-12 weeks . . . . .	40.2	42.7	46.1	41.2	38.7	31.1	35.5
13-15 weeks . . . . .	5.6	7.7	8.4	5.6	4.0	2.7	6.2
16-20 weeks . . . . .	3.7	5.5	5.6	3.7	2.2	1.5	5.5
21 weeks or more . . . . .	1.2	1.9	2.2	1.2	0.8	0.8	1.0
		Number					
10-17 years . . . . .	30,151	2,841	20,135	4,918	168	-	2,089
		Percent distribution					
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	7.6	6.7	7.0	9.1	11.9	-	10.1
7-8 weeks . . . . .	26.8	22.6	26.7	29.1	33.3	-	28.7
9-12 weeks . . . . .	46.9	47.8	48.0	44.6	45.2	-	40.7
13-15 weeks . . . . .	9.0	11.0	9.0	7.9	5.4	-	8.9
16-20 weeks . . . . .	6.9	8.8	6.4	6.6	3.0	-	9.6
21 weeks or more . . . . .	2.8	3.0	2.8	2.8	1.2	-	2.0
		Number					
18-24 years . . . . .	130,917	1,403	17,050	65,098	31,395	8,283	7,688
		Percent distribution					
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	11.5	12.1	9.0	10.7	12.9	16.8	13.0
7-8 weeks . . . . .	34.4	31.3	27.3	33.1	38.4	43.0	35.3
9-12 weeks . . . . .	42.7	43.9	46.9	44.0	40.9	34.6	38.3
13-15 weeks . . . . .	6.1	6.6	8.9	6.5	4.5	3.0	6.8
16-20 weeks . . . . .	4.0	4.6	5.8	4.3	2.5	1.7	5.6
21 weeks or more . . . . .	1.3	1.4	2.0	1.4	0.9	0.9	0.9
		Number					
25 years and over . . . . .	114,379	2,279	9,455	51,713	23,771	19,533	7,628
		Percent distribution					
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	17.8	17.3	14.8	16.3	18.2	22.1	20.0
7-8 weeks . . . . .	39.3	40.7	33.8	38.4	40.2	43.5	38.7
9-12 weeks . . . . .	35.6	35.5	40.5	37.5	35.7	29.6	31.5
13-15 weeks . . . . .	4.0	4.0	6.2	4.3	3.4	2.6	4.6
16-20 weeks . . . . .	2.5	1.8	3.8	2.7	1.9	1.4	4.2
21 weeks or more . . . . .	0.8	0.7	1.0	0.8	0.6	0.7	0.8
		Number					
Not stated . . . . .	1,638	27	248	676	215	185	287
		Percent distribution					
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	14.0	-	14.6	12.6	14.0	20.0	14.7
7-8 weeks . . . . .	37.8	29.6	28.7	40.1	40.5	44.4	33.0
9-12 weeks . . . . .	35.9	48.1	44.9	35.6	35.3	31.1	28.8
13-15 weeks . . . . .	6.8	14.8	7.7	6.4	5.1	1.7	12.6
16-20 weeks . . . . .	4.3	7.4	2.0	4.0	4.7	1.7	9.9
21 weeks or more . . . . .	1.2	-	2.0	1.2	0.5	1.1	1.0

See footnotes and note at end of table.

**Table 9. Number of reported induced terminations of pregnancy by educational attainment, race, and age of woman and percent distribution by period of gestation according to educational attainment, race, and age of woman: 11-State area, 1986—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Race and age of woman and period of gestation <sup>1</sup>	Years of school completed						Not stated
	Total	0-8 years	9-11 years	12 years	13-15 years	16 years or more	
White							
All ages . . . . .	175,162	3,717	28,304	75,332	36,386	20,578	10,845
Number							
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less. . . . .	14.4	11.8	9.4	13.6	15.7	21.3	16.7
7-8 weeks. . . . .	37.2	31.8	29.6	36.8	40.9	44.1	36.6
9-12 weeks . . . . .	39.8	43.6	47.5	40.9	37.4	30.0	37.4
13-15 weeks . . . . .	4.8	6.8	7.4	4.9	3.5	2.3	4.9
16-20 weeks . . . . .	2.8	4.4	4.5	2.8	1.8	1.5	3.6
21 weeks or more . . . . .	1.0	1.6	1.6	1.0	0.7	0.7	0.8
Number							
10-17 years. . . . .	18,726	1,316	12,819	3,227	112	-	1,252
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less. . . . .	8.1	7.2	7.3	9.9	14.3	-	11.3
7-8 weeks. . . . .	28.4	23.3	28.2	31.2	32.1	-	28.9
9-12 weeks . . . . .	48.3	48.9	49.1	45.8	47.3	-	45.2
13-15 weeks . . . . .	7.9	10.4	8.0	6.4	3.6	-	7.7
16-20 weeks . . . . .	5.3	7.1	5.3	4.6	1.8	-	5.6
21 weeks or more . . . . .	2.0	3.0	2.0	2.0	0.9	-	1.3
Number							
18-24 years. . . . .	85,476	970	10,130	41,429	21,662	6,383	4,902
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less. . . . .	12.0	10.9	9.1	11.1	13.3	17.4	13.7
7-8 weeks. . . . .	36.2	31.2	28.8	34.9	40.3	44.0	35.6
9-12 weeks . . . . .	42.5	46.7	48.9	43.8	39.7	33.7	40.8
13-15 weeks . . . . .	5.3	5.9	7.6	5.7	4.0	2.5	5.7
16-20 weeks . . . . .	3.0	4.2	4.3	3.3	2.0	1.6	3.4
21 weeks or more . . . . .	1.0	1.0	1.4	1.1	0.8	0.8	0.7
Number							
25 years and over . . . . .	70,066	1,418	5,225	30,273	14,474	14,065	4,611
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less. . . . .	19.0	16.8	14.9	17.4	19.3	23.2	21.4
7-8 weeks. . . . .	40.7	40.3	34.8	39.8	41.8	44.1	39.6
9-12 weeks . . . . .	34.3	36.4	41.0	36.4	34.0	28.3	31.9
13-15 weeks . . . . .	3.3	4.0	5.3	3.7	2.7	2.2	3.3
16-20 weeks . . . . .	2.0	2.1	3.2	2.0	1.6	1.5	3.2
21 weeks or more . . . . .	0.6	0.6	0.7	0.6	0.6	0.7	0.7
Number							
Not stated . . . . .	894	13	130	403	138	130	80
Percent distribution							
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less. . . . .	15.6	-	20.0	13.7	15.2	19.8	14.1
7-8 weeks. . . . .	39.8	15.4	23.8	42.0	42.0	47.6	42.3
9-12 weeks . . . . .	37.2	61.5	46.9	37.7	36.2	29.4	28.2
13-15 weeks . . . . .	4.4	7.7	7.7	4.0	4.3	-	7.7
16-20 weeks . . . . .	2.4	15.4	0.8	2.0	1.4	1.6	7.7
21 weeks or more . . . . .	0.7	-	0.8	0.5	0.7	1.6	-

See footnotes and note at end of table.

**Table 9. Number of reported induced terminations of pregnancy by educational attainment, race, and age of woman and percent distribution by period of gestation according to educational attainment, race, and age of woman: 11-State area, 1986—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Race and age of woman and period of gestation <sup>1</sup>	Years of school completed						Not stated
	Total	0-8 years	9-11 years	12 years	13-15 years	16 years or more	
				Number			
All ages . . . . .	89,399	2,297	16,960	43,320	17,571	6,161	3,090
				Percent distribution			
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	12.1	10.2	8.9	11.7	13.9	17.2	15.5
7-8 weeks . . . . .	32.3	27.0	26.4	32.4	35.5	40.8	31.0
9-12 weeks . . . . .	42.1	43.2	44.4	42.4	41.6	36.0	39.0
13-15 weeks . . . . .	6.9	9.5	10.0	6.7	5.1	3.9	6.7
16-20 weeks . . . . .	4.9	7.5	7.2	5.1	3.0	1.3	6.0
21 weeks or more . . . . .	1.8	2.6	3.1	1.6	0.9	0.8	1.9
				Number			
10-17 years . . . . .	10,369	1,438	6,855	1,603	49	-	424
				Percent distribution			
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	6.8	6.6	6.5	7.1	6.1	-	10.5
7-8 weeks . . . . .	24.1	21.8	24.3	24.9	36.7	-	24.2
9-12 weeks . . . . .	45.7	47.3	46.5	42.4	40.8	-	40.1
13-15 weeks . . . . .	10.6	11.1	10.6	10.7	8.2	-	8.6
16-20 weeks . . . . .	8.7	10.0	7.7	10.5	6.1	-	12.6
21 weeks or more . . . . .	4.1	3.1	4.3	4.3	2.0	-	4.0
				Number			
18-24 years . . . . .	40,424	308	6,279	22,065	8,896	1,620	1,256
				Percent distribution			
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	10.4	13.7	8.7	9.8	11.8	14.5	13.6
7-8 weeks . . . . .	30.4	30.6	25.3	29.9	33.7	39.0	29.8
9-12 weeks . . . . .	44.1	38.8	44.2	44.7	44.2	39.0	40.6
13-15 weeks . . . . .	7.6	8.8	10.9	7.7	5.7	4.6	7.5
16-20 weeks . . . . .	5.6	5.2	8.2	5.9	3.5	2.0	6.3
21 weeks or more . . . . .	1.9	2.9	2.8	2.0	1.2	0.9	2.3
				Number			
25 years and over . . . . .	38,131	543	3,722	19,419	8,567	4,494	1,386
				Percent distribution			
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	15.3	18.2	13.5	14.3	16.2	18.2	18.5
7-8 weeks . . . . .	36.5	38.7	32.0	35.9	37.3	41.5	34.3
9-12 weeks . . . . .	39.0	35.0	40.8	39.9	39.0	34.8	37.1
13-15 weeks . . . . .	5.1	5.2	7.5	5.2	4.4	3.6	5.4
16-20 weeks . . . . .	3.1	2.0	4.7	3.7	2.3	1.1	3.8
21 weeks or more . . . . .	0.9	0.9	1.5	1.0	0.7	0.8	0.8
				Number			
Not stated . . . . .	475	8	104	233	59	47	24
				Percent distribution			
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	11.3	-	9.7	10.5	8.5	17.4	25.0
7-8 weeks . . . . .	34.6	37.5	33.0	36.0	35.6	37.0	20.8
9-12 weeks . . . . .	37.2	37.5	43.7	33.8	35.6	39.1	41.7
13-15 weeks . . . . .	8.5	25.0	5.8	10.1	6.8	4.3	12.5
16-20 weeks . . . . .	6.2	-	3.9	7.0	13.6	2.2	-
21 weeks or more . . . . .	2.1	-	3.9	2.6	-	-	-

<sup>1</sup> Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.<sup>2</sup> Includes races other than white and black.

NOTE: The 11-State area includes Indiana, Kansas, Missouri, Montana, New York, Oregon, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Table 10. Number of reported induced terminations of pregnancy by type of procedure and percent distribution by type of procedure, according to period of gestation: 13-State area, 1986**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All procedures	Suction curettage	Sharp curettage	Saline instillation	Prostaglandin instillation	Hysterotomy	Hysterectomy	Other
Total . . . . .	298,719 <sup>2</sup>	285,495	3,211	3,640	1,308	32	24	2,452
	Percent distribution							
All periods of gestation. . . . .	100.0	96.4	1.1	1.2	0.4	0.0	0.0	0.8
6 weeks or less . . . . .	100.0	97.6	1.1	0.1	0.0	0.0	0.0	1.2
7 weeks . . . . .	100.0	97.9	0.7	0.0	0.0	0.0	0.0	1.3
8 weeks . . . . .	100.0	98.5	0.7	0.1	0.0	0.0	0.0	0.7
9 weeks . . . . .	100.0	98.9	0.7	0.1	0.0	0.0	0.0	0.3
10 weeks . . . . .	100.0	98.7	0.9	0.1	0.1	—	0.0	0.2
11 weeks . . . . .	100.0	98.4	1.1	0.2	0.1	0.0	0.0	0.2
12 weeks . . . . .	100.0	97.1	1.8	0.6	0.2	—	—	0.3
13 weeks . . . . .	100.0	94.9	2.8	1.2	0.5	0.0	0.0	0.5
14 weeks . . . . .	100.0	90.4	4.1	2.9	1.2	0.0	0.0	1.3
15 weeks . . . . .	100.0	84.0	4.6	6.8	2.5	0.1	0.1	2.1
16 weeks . . . . .	100.0	75.8	4.3	11.8	5.4	0.0	—	2.6
17 weeks . . . . .	100.0	73.1	2.5	14.4	7.0	0.1	0.0	2.9
18 weeks . . . . .	100.0	65.4	2.0	20.1	8.8	0.1	—	3.7
19 weeks . . . . .	100.0	61.8	1.6	24.3	8.9	0.2	—	3.2
20 weeks . . . . .	100.0	58.3	1.2	28.9	7.9	0.1	—	3.6
21 weeks or more . . . . .	100.0	66.2	1.1	23.9	5.4	0.1	0.0	3.3
Not stated. . . . .	100.0	90.3	1.8	4.2	2.7	—	—	1.0

<sup>1</sup> Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

<sup>2</sup> Includes procedure not stated.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 11. Number of reported induced terminations of pregnancy by metropolitan-nonmetropolitan residence, race, and age of woman: 13-State area, 1985 and 1986

[Data include only induced terminations of pregnancy occurring in the reporting area]

Year and age of woman	All areas			Metropolitan areas			Nonmetropolitan areas		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
1986									
All ages . . . . .	298,719	190,125	90,700	259,905	158,410	85,369	38,814	31,715	5,331
Under 14 years . . . . .	738	260	444	616	190	396	122	70	48
14 years . . . . .	2,081	951	1,036	1,755	727	953	326	224	83
15-19 years . . . . .	70,133	46,899	19,680	58,880	37,486	18,299	11,253	9,413	1,381
15 years . . . . .	5,458	3,125	2,068	4,524	2,397	1,893	934	728	175
16 years . . . . .	10,372	6,595	3,248	8,593	5,149	3,002	1,779	1,446	246
17 years . . . . .	13,873	9,400	3,728	11,627	7,514	3,462	2,246	1,886	266
18 years . . . . .	19,752	13,596	5,208	16,605	10,891	4,879	3,147	2,705	329
19 years . . . . .	20,678	14,183	5,428	17,531	11,535	5,063	3,147	2,648	365
20-24 years . . . . .	100,971	65,073	30,372	88,053	54,424	28,610	12,918	10,649	1,762
25-29 years . . . . .	64,637	39,503	21,107	57,357	33,712	19,977	7,280	5,791	1,130
30-34 years . . . . .	35,831	21,994	11,242	31,811	18,764	10,673	4,020	3,230	569
35-39 years . . . . .	18,120	11,507	5,178	15,965	9,740	4,895	2,155	1,767	283
40 years and over . . . . .	4,505	2,994	1,163	3,929	2,510	1,092	576	484	71
Not stated . . . . .	1,703	944	478	1,539	857	474	164	87	4
1985									
All ages . . . . .	305,938	201,245	90,002	265,914	167,917	84,901	40,024	33,328	5,101
Under 14 years . . . . .	714	288	407	620	228	375	94	60	32
14 years . . . . .	2,339	1,160	1,123	1,946	872	1,029	393	288	94
15-19 years . . . . .	73,567	50,890	19,918	61,521	40,593	18,579	12,046	10,297	1,339
15 years . . . . .	5,668	3,349	2,125	4,675	2,539	1,972	993	810	153
16 years . . . . .	10,264	6,845	3,069	8,466	5,335	2,848	1,798	1,510	221
17 years . . . . .	14,426	9,998	3,911	12,017	7,954	3,628	2,409	2,044	283
18 years . . . . .	21,040	15,104	5,144	17,575	12,082	4,808	3,465	3,022	336
19 years . . . . .	22,169	15,594	5,669	18,788	12,683	5,323	3,381	2,911	34
20-24 years . . . . .	104,947	70,367	30,266	91,517	59,093	28,599	13,430	11,274	1,86
25-29 years . . . . .	64,714	40,788	20,659	57,507	35,003	19,592	7,207	5,785	1,067
30-34 years . . . . .	35,259	22,173	11,052	31,222	18,894	10,488	4,037	3,279	564
35-39 years . . . . .	17,609	11,600	4,915	15,507	9,862	4,647	2,102	1,738	268
40 years and over . . . . .	4,728	3,198	1,216	4,111	2,674	1,147	617	524	69
Not stated . . . . .	2,061	781	446	1,963	698	445	98	83	1

<sup>1</sup> Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 12. Number of reported induced terminations of pregnancy by residence status of woman and percent distribution by period of gestation, according to residence status of woman: 13-State area, 1985 and 1986

ata include only induced terminations of pregnancy occurring in the reporting area]

Period of gestation <sup>1</sup>	All induced terminations occurring in area	Induced terminations occurring in area among U.S. residents	Induced terminations occurring in State of residence		Induced terminations among interstate nonresidents	Induced terminations among nonresidents of United States
			Total	Occurring in county of residence		
1986						
Total . . . . .	300,115	298,719	276,730	194,559	82,171	21,989
				Number		
				194,559	82,171	
				Percent distribution		
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	13.1	13.1	13.3	14.3	11.0	10.9
7 weeks . . . . .	16.8	16.9	17.0	17.6	15.6	15.0
8 weeks . . . . .	18.9	18.9	19.0	18.9	19.4	17.7
9 weeks . . . . .	15.1	15.1	15.2	14.9	15.8	14.4
10 weeks . . . . .	12.0	12.0	12.1	11.6	13.1	11.9
11 weeks . . . . .	8.6	8.6	8.6	8.2	9.6	8.7
12 weeks . . . . .	4.9	4.8	4.9	4.6	5.4	4.6
13 weeks . . . . .	2.8	2.8	2.8	2.7	3.0	3.2
14 weeks . . . . .	1.7	1.7	1.6	1.6	1.7	1.8
15 weeks . . . . .	1.2	1.2	1.2	1.2	1.2	1.3
16 weeks . . . . .	1.0	1.0	0.9	0.9	0.9	1.2
17 weeks . . . . .	0.9	0.9	0.8	0.8	0.9	1.5
18 weeks . . . . .	0.7	0.7	0.7	0.7	0.7	1.2
19 weeks . . . . .	0.6	0.6	0.5	0.5	0.5	1.2
20 weeks . . . . .	0.6	0.6	0.5	0.5	0.4	1.3
21 weeks or more . . . . .	1.2	1.2	1.0	1.0	0.9	4.2
1985						
Total . . . . .	306,972	305,938	283,362	199,462	83,900	22,576
				Number		
				199,462	83,900	
				Percent distribution		
All periods of gestation . . . . .	100.0	100.0	100.0	100.0	100.0	100.0
6 weeks or less . . . . .	12.4	12.4	12.6	13.8	9.8	10.2
7 weeks . . . . .	16.8	16.8	17.0	17.7	15.2	15.3
8 weeks . . . . .	19.2	19.2	19.4	19.3	19.7	17.0
9 weeks . . . . .	15.4	15.4	15.4	15.1	16.4	15.0
10 weeks . . . . .	12.1	12.2	12.2	11.7	13.4	11.7
11 weeks . . . . .	8.7	8.7	8.7	8.2	9.7	8.9
12 weeks . . . . .	4.9	4.9	4.9	4.6	5.6	4.8
13 weeks . . . . .	2.7	2.7	2.7	2.6	2.9	2.9
14 weeks . . . . .	1.7	1.7	1.7	1.7	1.7	1.8
15 weeks . . . . .	1.2	1.2	1.2	1.2	1.2	1.3
16 weeks . . . . .	1.0	1.0	0.9	0.9	1.0	1.4
17 weeks . . . . .	0.8	0.8	0.8	0.8	0.8	1.5
18 weeks . . . . .	0.7	0.7	0.7	0.7	0.7	1.3
19 weeks . . . . .	0.6	0.6	0.5	0.5	0.5	1.2
20 weeks . . . . .	0.5	0.5	0.4	0.4	0.5	1.2
21 weeks or more . . . . .	1.2	1.2	0.9	0.9	0.9	4.4

<sup>1</sup>Period of gestation is a combination of calculated gestation from "date last normal menses began" and "physician's estimate of gestation"; see Technical notes.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

Table 13. Number of reported induced terminations of pregnancy in the 13 reporting States and New York City, by place of residence according to place of occurrence: United States, each State, New York City, and specified places outside the United States, 1986

[Data include only induced terminations of pregnancy occurring in the reporting area]

Place of residence	Place of occurrence																		
	Total	New York											Oregon	Rhode Island	South Carolina	Tennessee	Utah	Vermont	Virginia
		Colorado	Indiana	Kansas	Missouri	Montana	Total	Upstate New York	New York City										
All places of residence . . . . .	300,115	14,144	12,857	5,974	19,039	3,295	151,488	54,079	97,409	11,217	7,502	12,174	21,938	4,450	3,418	32,619			
United States . . . . .	298,719	14,136	12,857	5,973	19,039	2,889	150,526	53,249	97,277	11,212	7,498	12,173	21,938	4,447	3,412	32,619			
Alabama . . . . .	161	1	-	-	1	-	1	1	-	-	1	2	154	-	-	1			
Alaska . . . . .	15	1	-	-	-	1	2	2	-	9	-	-	-	1	-	1			
Arizona . . . . .	28	18	1	-	-	-	2	2	-	2	-	-	-	2	1	1			
Arkansas . . . . .	926	-	1	4	101	-	-	-	-	-	-	1	816	2	-	1			
California . . . . .	143	7	5	3	4	2	21	8	13	79	1	3	4	4	2	8			
Colorado . . . . .	13,321	13,304	-	1	1	1	6	4	2	2	-	-	1	2	1	2			
Connecticut . . . . .	709	-	-	2	-	-	628	270	358	-	70	2	1	-	2	4			
Delaware . . . . .	31	3	-	-	-	-	22	1	21	-	-	1	-	-	-	5			
District of Columbia . . . . .	268	1	-	-	-	1	57	1	56	-	2	1	-	-	-	206			
Florida . . . . .	90	2	3	1	1	-	35	20	15	1	2	14	12	-	1	18			
Georgia . . . . .	668	1	-	-	3	-	7	1	6	-	-	156	495	-	-	6			
Hawaii . . . . .	3	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-			
Idaho . . . . .	167	3	-	-	-	12	-	-	-	43	-	-	-	109	-	-			
Illinois . . . . .	1,918	3	246	5	1,635	1	10	2	8	1	2	3	8	-	-	4			
Indiana . . . . .	12,409	1	12,382	1	15	1	4	2	2	-	-	-	3	-	-	2			
Iowa . . . . .	60	5	1	24	27	-	1	-	1	-	-	-	2	-	-	-			
Kansas . . . . .	4,231	36	1	3,658	533	-	1	-	1	-	-	1	1	-	-	-			
Kentucky . . . . .	983	-	7	-	124	-	1	-	1	-	-	-	840	-	-	11			
Louisiana . . . . .	14	-	-	-	1	-	2	-	2	1	-	1	6	-	-	3			
Maine . . . . .	28	-	-	-	-	-	23	4	19	-	4	-	-	-	1	-			
Maryland . . . . .	672	2	-	-	2	-	147	4	143	1	-	7	1	1	1	510			
Massachusetts . . . . .	1,857	-	3	-	1	-	152	14	138	-	1,663	2	-	1	31	4			
Michigan . . . . .	125	1	103	-	6	-	9	3	6	1	-	2	1	-	-	2			
Minnesota . . . . .	12	-	3	1	-	1	4	-	4	-	-	-	2	1	-	-			
Mississippi . . . . .	1,185	-	-	-	2	-	2	1	1	-	-	2	1,177	-	-	2			
Missouri . . . . .	18,756	1	3	2,173	16,496	-	3	2	1	-	-	2	74	-	-	4			
Montana . . . . .	2,645	13	-	1	-	2,627	-	-	-	2	-	-	1	1	-	-			
Nebraska . . . . .	174	102	-	43	27	-	-	-	-	-	-	1	-	1	-	-			
Nevada . . . . .	34	3	-	-	1	-	-	-	-	2	-	-	-	27	-	1			
New Hampshire . . . . .	356	-	-	-	1	-	30	4	26	-	7	1	-	-	317	-			
New Jersey . . . . .	2,268	-	-	2	-	-	2,237	262	1,975	1	8	2	1	1	2	14			
New Mexico . . . . .	223	219	-	-	-	1	1	-	1	-	-	-	-	1	-	1			
New York . . . . .	145,992	4	1	-	4	1	145,303	51,408	93,895	5	9	6	2	-	596	61			
Upstate New York . . . . .	53,794	3	-	-	-	1	53,166	49,759	3,407	4	6	4	2	-	592	16			
New York City . . . . .	92,198	1	1	-	4	-	92,137	1,649	90,488	1	3	2	-	-	4	45			

**Table 13. Number of reported induced terminations of pregnancy in the 13 reporting States and New York City, by place of residence according to place of occurrence: United States, each State, New York City, and specified places outside the United States, 1986—Con.**

[Data include only induced terminations of pregnancy occurring in the reporting area]

Place of residence	Place of occurrence																
	Total	New York						Total	Upstate New York	New York City	Oregon	Rhode Island	South Carolina	Tennessee	Utah	Vermont	Virginia
		Colorado	Indiana	Kansas	Missouri	Montana	Montana										
North Carolina . . . . .	1,048	—	2	—	—	—	21	3	18	—	1	318	18	—	—	688	
North Dakota . . . . .	16	—	—	—	1	13	—	—	—	—	—	—	—	—	—	2	
Ohio . . . . .	133	—	87	3	3	1	18	10	8	—	—	4	5	1	—	11	
Oklahoma . . . . .	64	1	—	42	16	1	2	—	2	—	1	1	—	—	—	—	
Oregon . . . . .	10,195	1	—	—	—	1	2	1	1	10,187	—	—	—	4	—	—	
Pennsylvania . . . . .	1,587	—	—	1	1	—	1,553	1,186	367	1	1	2	4	—	2	22	
Rhode Island . . . . .	5,767	1	—	—	1	—	43	5	38	—	5,721	—	—	—	—	1	
South Carolina . . . . .	11,632	—	—	—	1	—	4	2	2	—	—	11,617	4	—	—	6	
South Dakota . . . . .	46	38	—	2	1	4	—	—	—	—	—	—	—	—	—	1	
Tennessee . . . . .	18,173	—	1	3	19	—	6	2	4	—	1	2	18,128	—	—	13	
Texas . . . . .	50	11	1	3	6	—	7	5	2	3	—	5	5	1	—	8	
Utah . . . . .	4,160	106	—	—	—	1	—	—	—	1	—	1	—	4,050	1	—	
Vermont . . . . .	2,478	—	—	—	—	—	23	6	17	—	2	—	—	—	2,453	—	
Virginia . . . . .	31,105	2	—	—	—	—	121	10	111	—	1	9	167	—	1	30,804	
Washington . . . . .	885	1	1	—	—	7	5	2	3	869	—	—	—	2	—	—	
West Virginia . . . . .	203	—	1	—	1	—	6	—	6	—	—	1	4	—	—	190	
Wisconsin . . . . .	13	—	4	—	1	—	3	1	2	—	—	3	—	1	—	1	
Wyoming . . . . .	692	244	—	—	1	211	1	—	1	1	—	—	—	234	—	—	
Outside of United States																	
Puerto Rico . . . . .	6	—	—	—	—	—	6	1	5	—	—	—	—	—	—	—	
Virgin Islands . . . . .	3	—	—	—	—	—	3	2	1	—	—	—	—	—	—	—	
Canada . . . . .	793	3	—	—	—	405	373	319	54	3	1	1	—	3	4	—	
Mexico . . . . .	2	1	—	—	—	—	1	—	1	—	—	—	—	—	—	—	
Remainder of world . . . . .	592	4	—	1	—	1	579	508	71	2	3	—	—	—	2	—	

## Technical notes

### Nature and sources of data

Data in this report for 1985 and 1986 are based on information for the same 13 States: Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

The reporting States provided data on magnetic tape for individual events coded from copies of the original reports of induced termination of pregnancy. These data were provided to the National Center for Health Statistics (NCHS) through the Vital Statistics Cooperative Program. NCHS collects information on individual abortions occurring in selected States with mandatory abortion reporting requirements. The State abortion reporting forms include information on the demographic characteristics and pregnancy history of the woman and the nature of the procedure. The NCHS data system, based on reports of individual abortions, enables detailed cross-classification.

Two other organizations currently publish information on induced abortions—the Center for Health Promotion and Education (CHPE), which like NCHS is a component of the Centers for Disease Control (CDC), and the Alan Guttmacher Institute (AGI), a private organization. CHPE relies primarily on aggregate abortion data reported by State health agencies, hospitals, and medical institutions, and AGI obtains its information from a nationwide survey of abortion providers.

### Item completeness

Item completeness, which is measured by the percent of records with codes other than “not stated,” is shown in table I for the varying number of States included in the analysis of each item. States were excluded from analysis if either information was not collected on the item or no information for the item was reported in 25 percent or more of the records. Table I shows that resident status was

100 percent complete for both 1985 and 1986. Residence information, if unknown or incomplete, is allocated at the coding level according to the following rules: First, records with unknown residence are allocated to place of occurrence. Second, records on which only State of residence is reported, with no city or county specified, and on which the State named is different from the State of occurrence, are allocated to the largest city of the State of residence.

### Classification of data

Procedures used for coding and classifying the items on the Report of Induced Termination of Pregnancy are described in Part 10, “Classification and coding instructions for induced termination of pregnancy records,” of the *Vital Statistics Instruction Manual*, for 1986 (NCHS, 1985b) and 1985 (NCHS, 1984). Codes for geographic areas are described in Part 8, “Vital records geographic classification, 1982” (NCHS, 1985c). Additional information on classifying selected items can be found in the Technical Appendix of *Vital Statistics of the United States*, Vol. I (NCHS, 1983b). Definitions of types of procedures used may be found in the publication *Legalized Abortion and the Public Health* (Institute of Medicine, 1975). Data on period of gestation are computed from information on “date of termination” and “date of last normal menses.” If “date of last normal menses” is not stated or computed gestation weeks is not possible, “physician’s estimate of gestation 1 weeks” is used.

### Ratios, percents, and medians

Measures of incidence in this report are based on ratios of induced terminations of pregnancy to live births. These ratios refer to the number of induced terminations and live births occurring in the reporting States to residents of the reporting States. In the computation of ratios, “not stated” cases have been distributed according to the reported or

Table I. Percent completeness for items on reporting form and number of reporting States: 1985 and 1986

Item	1986		1985	
	Percent completeness	Number of reporting States	Percent completeness	Number of reporting States
Age of woman . . . . .	99.4	13	99.3	13
Complications . . . . .	97.4	13	97.4	13
Education . . . . .	93.6	11	94.1	11
Marital status of woman <sup>1</sup> . . . . .	95.7	12	97.5	12
Period of gestation . . . . .	99.7	13	99.8	13
Previous induced terminations . . . . .	95.3	13	95.7	13
Previous live births . . . . .	95.6	13	96.1	13
Race of woman . . . . .	96.2	13	97.1	13
Resident status <sup>2</sup> . . . . .	100.0	13	100.0	13
Type of procedure . . . . .	99.1	13	99.3	13

<sup>1</sup> New York City also reported marital status.

<sup>2</sup> Resident status unknown is allocated at the coding level; see Technical notes.

known proportion for a particular characteristic. Ratios are computed before distributed numbers are rounded. Ratios of induced terminations of pregnancy provide an approximate indication of the frequency of induced abortions in relation to the frequency of pregnancies.

Two forms of induced abortion ratios (ratios per 1,000 live births—Type I—and ratios per 1,000 live births and induced abortions—Type II) are shown in table II. Induced abortion ratios in the text of this report are of Type I. These ratios are larger than those of Type II because the latter includes a larger number of events in the denominator than the former. Both ratios have the same number of events—induced terminations—in the numerator of the ratio. For Type I ratios, age differentials are greater, that is, the range between the largest and the smallest ratios by age of women is greater than for Type II ratios. Induced abortion differentials by race are also more pronounced using Type I than Type II ratios.

In the computation of percent distributions and medians, “not stated” cases are excluded. Proportional allocation of “not stated” cases in computing these measures would yield exactly the same results. In addition, medians were calculated using single years of age, single years of education, and single weeks of gestation.

In the computation of percent change the following general formula was used:

$$\frac{R_1 - R_2}{R_2} \cdot 100$$

where  $R_1$  equals the ratio of interest in 1986 and  $R_2$  equals the ratio of interest in 1985. The total percent change is a weighted average of the change for the groups of interest. Although it is unusual, the total percent change can be greater or smaller than either of the percent changes in its component parts as seen in table B.

**Table II. Type I and II induced termination of pregnancy ratios by race and age of woman: 13-State area, 1986**

[Type I ratio is per 1,000 live births. Type II ratio is per 1,000 live births and induced terminations. Induced terminations of pregnancy and live births are only those occurring in the area among residents of the area]

Age of woman	Type I			Type II		
	All races <sup>1</sup>	White	Black	All races <sup>1</sup>	White	Black
All ages . . . . .	347.2	285.7	634.4	257.7	222.2	388.1
Under 14 years . . . . .	1,760.3	2,066.7	1,609.3	637.7	673.2	616.3
14 years . . . . .	1,240.8	1,361.9	1,153.5	553.7	576.5	535.6
15-19 years . . . . .	696.3	704.9	686.8	410.5	413.5	407.1
15 years . . . . .	1,037.6	1,145.2	933.1	509.2	533.8	482.6
16 years . . . . .	909.6	991.6	792.7	476.3	497.9	442.1
17 years . . . . .	731.9	767.3	666.9	422.6	434.2	400.1
18 years . . . . .	703.4	717.5	678.8	413.0	417.7	404.3
19 years . . . . .	559.4	547.2	598.9	358.7	353.7	374.5
20-24 years . . . . .	405.5	344.6	647.8	288.5	256.3	393.1
25-29 years . . . . .	237.2	179.8	578.0	191.7	152.4	366.3
30-34 years . . . . .	213.8	161.4	550.8	176.1	139.0	355.1
35-39 years . . . . .	331.6	266.7	704.8	249.0	210.5	413.4
40 years and over . . . . .	605.0	529.1	973.8	376.9	346.0	493.3

<sup>1</sup>Includes races other than white and black.

NOTE: The 13-State area includes Colorado, Indiana, Kansas, Missouri, Montana, New York, Oregon, Rhode Island, South Carolina, Tennessee, Utah, Vermont, and Virginia.

**Symbols**

- - - Data not available
- Quantity zero
- 0.0 Quantity more than zero but less than 0.05
- Z Quantity more than zero but less than 500 where numbers are rounded to thousands
- \* Figure does not meet standards of reliability or precision (when the base of the measure includes fewer than 20 events)

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Data Dissemination Branch  
National Center for Health Statistics  
Centers for Disease Control and Prevention  
Public Health Service  
6525 Belcrest Road, Room 1064  
Hyattsville, MD 20782  
(301) 436-8500  
E-mail: [nchsquery@nch10a.em.cdc.gov](mailto:nchsquery@nch10a.em.cdc.gov)  
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